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VOLUME I

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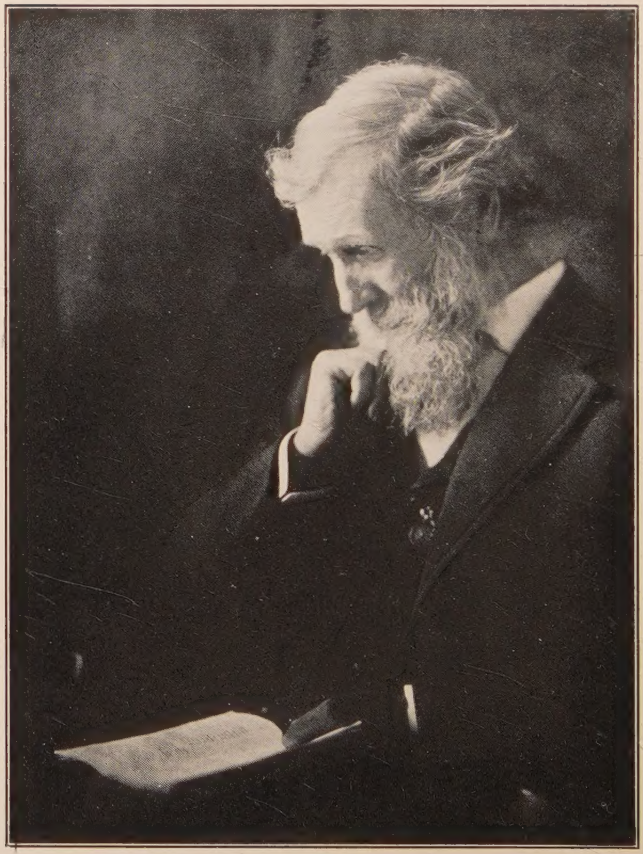

THE STORY OF MY BOYHOOD AND YOUTH

BY

JOHN MUIR

BOSTON AND NEW YORK
HOUGHTON MIFFLIN COMPANY

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PUBLISHERS' NOTE

This uniform edition of John Muir's Works is published by arrangement with his family and with Professor William Frederic Badè, who at their request acts as supervising editor of Mr. Muir's published and unpublished writings, and who has written the general Introduction which follows. The completeness of the edition is made possible by the kind cooperation of the Century Company, who have permitted the inclusion of the two books published by them, *The Mountains of California* and *The Yosemite*. Most of the illustrations are from photographs by Mr. Herbert W. Gleason, who has tramped with Mr. Muir in the Sierra and has visited many other places described in these volumes, from the Wisconsin farm which was Muir's first American home to the California ranch where he spent his last years.

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INTRODUCTION

"LONGEST is the life that contains the largest amount of time-effacing enjoyment — of work that is a steady delight. Such a life may really comprise an eternity upon earth." These words of John Muir I noted down after one of our last conversations. To few men was it given to realize so completely the element of eternity — of time-effacing enjoyment in work — as it was to John Muir. The secret of it all was in his soul, the soul of a child, of a poet, and of a strong man, all blended into one. Only such a one would have mounted the top of a pine tree in a gale-swept forest in order to enjoy the better the passionate music of the storm, and then tell how "we all travel the milky way together, trees and men; but it never occurred to me until this storm-day," he wrote, "that trees are travelers in the ordinary sense. They make many journeys, not extensive ones it is true; but our own little journeys, away and back again, are only little more than tree-wavings — many of them not so much."

But the play of his rich imagination did not pause with the adventure in the tree-top.

"When the storm began to abate," he continues, "I dismounted and sauntered down through the calming woods. The storm-tones died away, and turning toward the east, I beheld the countless hosts of the forests hushed and tranquil, towering above one another on the slopes of the hills like a devout audience. The setting sun filled them with amber light, and seemed to say, while they listened, 'My peace I give unto you.'"

These quotations illustrate the irresistible charm of simplicity, the directness of poetical feeling and perception, that were a part of everything Mr. Muir wrote, said, and did. When he struck out upon the long trail he was not only foremost among the nature writers of America, but in many respects the most distinguished figure among contemporary men of letters. It will take more than this hasteful, fretful generation to take the measure of his greatness, and to explore the sources of his power.

Before me lies a letter written to Mr. Muir by a friend fifty years ago. He was then twenty-nine years old and had just received a serious injury to one of his eyes. "Dear John," the writer says, "I have often wondered what God was training you for. He gave you the eye within the eye, to see in all natural objects the

realized ideas of His mind. He gave you pure tastes, and the steady preference of whatsoever is most lovely and excellent. He has made you a more individualized existence than is common, and by your very nature and organization removed you from common temptations. . . . Do not be anxious about your calling. God will surely place you where your work is."

Thus early did his friends see in him those personal qualities and those powers of insight which gave a rare distinction to his person and his presence. Evil thoughts fled at the sound of his voice. An innate nobility of character, an unstudied reverence for all that is sublime in nature or in life, unconsciously called forth the best in his friends and acquaintances. In the spiritual as in the physical realm flowers blossomed in his footsteps where he went. After all, it is to such men as John Muir that we must look for the sustenance of those finer feelings that keep men in touch with the spiritual meaning and beauty of the universe, and make them capable of understanding those rare souls whose insight has invested life with imperishable hope and charm.

Not many years ago the directors of the Sierra Club arranged for a quiet little dinner in honor of James Bryce, when he returned

from his visit to Australia. To all intents and purposes there were only two men at the dinner, Bryce and Muir, for the rest were intent listeners — too intent, altogether, to take more than mental notes. Both were enlarging upon the value of the civilizing influences that arise from a deep and humane understanding of nature. Lord Bryce ventured the remark that the establishment of national parks, and the fostering of a love of nature and outdoor life among children, would do more for the morals of the nation than libraries and law codes. Muir welcomed this opinion, and added that children ought to be trained to take a sympathetic interest in our wild birds and animals. "Under proper training," he said, "even the most savage boy will rise above the bloody flesh and sport business, the wild foundational animal dying out day by day as divine, uplifting, transfiguring charity grows in."

To all who knew John Muir intimately his gentleness and humaneness toward all creatures that shared the world with him was one of the finest attributes of his character. He was ever looking forward to the time when our wild fellow creatures would be granted their indisputable right to a place in the sun. The shy creatures of forest and plain have lost in

him an incomparable lover, biographer, and defender.

John Muir's writings are sure to live — by the law that men, when they lift their eyes from the commonplace tasks of work-a-day life, unerringly, indefeasibly fix them on the snowy crests of human thought and achievement. Thence it is that they must derive their power to hope and to toil. As long as daisies shall continue to star the fields of Scotland men will choose to see them through the eyes of Burns. Forgotten generations have heard the nightingale sing its love-song at twilight; but a finer music is in the song since Keats listened to the notes from the thicket on the hill. Nor will the name of Wordsworth ever be dissociated from the carol of the rising lark and the call of the cuckoo across the quiet of rural England.

John Muir is of their number. He had "the eye within the eye" — was a seer of rare distinction. Among the great few who have won title to remembrance as prophets and interpreters of nature he rises to a moral as well as poetical altitude that will command the admiring attention of men so long as human records shall endure. Thousands and thousands, hereafter, who go to the mountains, streams, and cañons of California will choose to see

them through the eyes of John Muir, and they will see more deeply because they see with his eyes.

But while in a high sense his wisdom has become a part of us forever, his going has left an aching void in the hearts of all lovers of the California mountains. Long accustomed to meet him where wild rivers go singing down the cañons, and skyey trails are lost amid cloudy pines, they now must perforce apply to him the simple words which sixteen years ago he wrote on his visit to the grave of his friend Ralph Waldo Emerson: "He had gone to higher Sierras, and, as I fancied, was again waving his hand in friendly recognition."

WILLIAM FREDERIC BADÈ

BERKELEY, CALIFORNIA
April 15, 1916

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From a photograph copyrighted by J. Edward B. Greene

THE BOYHOOD HOME AT DUNBAR, SCOTLAND . 18

From a photograph in the possession of Mr. David Muir, now living at Pacific Grove, California. Mr. Muir was born in the house at the left, but soon after the family moved into the next building, now used as a hotel. The main entrance was in the middle, and on the right Mr. Muir's father kept a store where he sold flour and grain. The parlor was at the left of the entrance and the living-rooms above. The dormer window at the left is the one out of which John and David crawled in their daring "scootchers."

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From a sketch by Mr. Muir

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From a photograph by Herbert W. Gleason

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MEADOW LILY 98

This flower (*Lilium Canadense*) is found throughout the eastern half of the United States, growing abundantly in favorable localities, especially moist meadows. The bell-like flowers vary in color from light yellow to deep orange, marked with brown spots.

From a photograph by Herbert W. Gleason

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In this building Mr. Muir attended school for a short time while the family lived at Fountain Lake Farm.

From a photograph by Herbert W. Gleason

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Invented by the Author in his boyhood.

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From a photograph by Herbert W. Gleason

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From a photograph by Herbert W. Gleason

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THE STORY OF MY BOYHOOD AND YOUTH

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CHAPTER I

A BOYHOOD IN SCOTLAND

When I was a boy in Scotland I was fond of everything that was wild, and all my life I've been growing fonder and fonder of wild places and wild creatures. Fortunately around my native town of Dunbar, by the stormy North Sea, there was no lack of wildness, though most of the land lay in smooth cultivation. With red-blooded playmates, wild as myself, I loved to wander in the fields to hear the birds sing, and along the seashore to gaze and wonder at the shells and seaweeds, eels and crabs in the pools among the rocks when the tide was low; and best of all to watch the waves in awful storms thundering on the black headlands and craggy ruins of the old Dunbar Castle when the sea and the sky, the waves and the clouds, were mingled together as one. We never thought of playing truant, but after I was five or six years old I ran away to the seashore or the fields almost every Saturday, and every day

in the school vacations except Sundays, though solemnly warned that I must play at home in the garden and back yard, lest I should learn to think bad thoughts and say bad words. All in vain. In spite of the sure sore punishments that followed like shadows, the natural inherited wildness in our blood ran true on its glorious course as invincible and unstoppable as stars.

My earliest recollections of the country were gained on short walks with my grandfather when I was perhaps not over three years old. On one of these walks grandfather took me to Lord Lauderdale's gardens, where I saw figs growing against a sunny wall and tasted some of them, and got as many apples to eat as I wished. On another memorable walk in a hayfield, when we sat down to rest on one of the haycocks I heard a sharp, prickly, stinging cry, and, jumping up eagerly, called grandfather's attention to it. He said he heard only the wind, but I insisted on digging into the hay and turning it over until we discovered the source of the strange exciting sound — a mother field mouse with half a dozen naked young hanging to her teats. This to me was a wonderful discovery. No hunter could have been more excited on discovering a bear and her cubs in a wilderness den.

I was sent to school before I had completed my third year. The first schoolday was doubtless full of wonders, but I am not able to recall any of them. I remember the servant washing my face and getting soap in my eyes, and mother hanging a little green bag with my first book in it around my neck so I would not lose it, and its blowing back in the sea-wind like a flag. But before I was sent to school my grandfather, as I was told, had taught me my letters from shop signs across the street. I can remember distinctly how proud I was when I had spelled my way through the little first book into the second, which seemed large and important, and so on to the third. Going from one book to another formed a grand triumphal advancement, the memories of which still stand out in clear relief.

The third book contained interesting stories as well as plain reading and spelling lessons. To me the best story of all was "Llewellyn's Dog," the first animal that comes to mind after the needle-voiced field mouse. It so deeply interested and touched me and some of my classmates that we read it over and over with aching hearts, both in and out of school, and shed bitter tears over the brave faithful dog, Gelert, slain by his own master, who imagined that he had devoured his son because

he came to him all bloody when the boy was lost, though he had saved the child's life by killing a big wolf. We have to look far back to learn how great may be the capacity of a child's heart for sorrow and sympathy with animals as well as with human friends and neighbors. This auld-lang-syne story stands out in the throng of old schoolday memories as clearly as if I had myself been one of that Welsh hunting-party — heard the bugles blowing, seen Gelert slain, joined in the search for the lost child, discovered it at last happy and smiling among the grass and bushes beside the dead, mangled wolf, and wept with Llewellyn over the sad fate of his noble, faithful dog friend.

Another favorite in this book was Southey's poem "The Inchcape Bell," a story of a priest and a pirate. A good priest in order to warn seamen in dark stormy weather hung a big bell on the dangerous Inchcape Rock. The greater the storm and higher the waves, the louder rang the warning bell, until it was cut off and sunk by wicked Ralph the Rover. One fine day, as the story goes, when the bell was ringing gently, the pirate put out to the rock, saying, "I'll sink that bell and plague the Abbot of Aberbrothok." So he cut the rope, and down went the bell "with a gurgling sound; the bubbles rose and burst around," etc. Then

"Ralph the Rover sailed away; he scoured the seas for many a day; and now, grown rich with plundered store, he steers his course for Scotland's shore." Then came a terrible storm with cloud darkness and night darkness and high roaring waves. "Now where we are," cried the pirate, "I cannot tell, but I wish I could hear the Inchcape bell." And the story goes on to tell how the wretched rover "tore his hair," and "curst himself in his despair," when "with a shivering shock" the stout ship struck on the Inchcape Rock, and went down with Ralph and his plunder beside the good priest's bell. The story appealed to our love of kind deeds and of wildness and fair play.

A lot of terrifying experiences connected with these first schooldays grew out of crimes committed by the keeper of a low lodging-house in Edinburgh, who allowed poor homeless wretches to sleep on benches or the floor for a penny or so a night, and, when kind Death came to their relief, sold the bodies for dissection to Dr. Hare of the medical school. None of us children ever heard anything like the original story. The servant girls told us that "Dandy Doctors," clad in long black cloaks and supplied with a store of sticking-plaster of wondrous adhesiveness, prowled at night about the country lanes and even the town streets,

watching for children to choke and sell. The Dandy Doctor's business method, as the servants explained it, was with lightning quickness to clap a sticking-plaster on the face of a scholar, covering mouth and nose, preventing breathing or crying for help, then pop us under his long black cloak and carry us to Edinburgh to be sold and sliced into small pieces for folk to learn how we were made. We always mentioned the name "Dandy Doctor" in a fearful whisper, and never dared venture out of doors after dark. In the short winter days it got dark before school closed, and in cloudy weather we sometimes had difficulty in finding our way home unless a servant with a lantern was sent for us; but during the Dandy Doctor period the school was closed earlier, for if detained until the usual hour the teacher could not get us to leave the schoolroom. We would rather stay all night supperless than dare the mysterious doctors supposed to be lying in wait for us. We had to go up a hill called the Davel Brae that lay between the schoolhouse and the main street. One evening just before dark, as we were running up the hill, one of the boys shouted, "A Dandy Doctor! A Dandy Doctor!" and we all fled pellmell back into the schoolhouse to the astonishment of Mungo Siddons, the teacher. I can remember to this day the

amused look on the good dominie's face as he stared and tried to guess what had got into us, until one of the older boys breathlessly explained that there was an awful big Dandy Doctor on the Brae and we couldna gang hame. Others corroborated the dreadful news. "Yes! We saw him, plain as onything, with his lang black cloak to hide us in, and some of us thought we saw a sticken-plaister ready in his hand." We were in such a state of fear and trembling that the teacher saw he was n't going to get rid of us without going himself as leader. He went only a short distance, however, and turned us over to the care of the two biggest scholars, who led us to the top of the Brae and then left us to scurry home and dash into the door like pursued squirrels diving into their holes.

Just before school skaled (closed), we all arose and sang the fine hymn "Lord, dismiss us with Thy blessing." In the spring when the swallows were coming back from their winter homes we sang —

> "Welcome, welcome, little stranger,
> Welcome from a foreign shore:
> Safe escaped from many a danger . . ."

and while singing we all swayed in rhythm with the music. "The Cuckoo," that always told his name in the spring of the year, was another

favorite song, and when there was nothing in particular to call to mind any special bird or animal, the songs we sang were widely varied, such as

> "The whale, the whale is the beast for me,
> Plunging along through the deep, deep sea."

But the best of all was "Lord, dismiss us with Thy blessing," though at that time the most significant part I fear was the first three words.

With my school lessons father made me learn hymns and Bible verses. For learning "Rock of Ages" he gave me a penny, and I thus became suddenly rich. Scotch boys are seldom spoiled with money. We thought more of a penny those economical days than the poorest American schoolboy thinks of a dollar. To decide what to do with that first penny was an extravagantly serious affair. I ran in great excitement up and down the street, examining the tempting goodies in the shop windows before venturing on so important an investment. My playmates also became excited when the wonderful news got abroad that Johnnie Muir had a penny, hoping to obtain a taste of the orange, apple, or candy it was likely to bring forth.

At this time infants were baptized and vaccinated a few days after birth. I remember

very well a fight with the doctor when my brother David was vaccinated. This happened, I think, before I was sent to school. I could n't imagine what the doctor, a tall, severe-looking man in black, was doing to my brother, but as mother, who was holding him in her arms, offered no objection, I looked on quietly while he scratched the arm until I saw blood. Then, unable to trust even my mother, I managed to spring up high enough to grab and bite the doctor's arm, yelling that I wasna gan to let him hurt my bonnie brither, while to my utter astonishment mother and the doctor only laughed at me. So far from complete at times is sympathy between parents and children, and so much like wild beasts are baby boys, little fighting, biting, climbing pagans.

Father was proud of his garden and seemed always to be trying to make it as much like Eden as possible, and in a corner of it he gave each of us a little bit of ground for our very own, in which we planted what we best liked, wondering how the hard dry seeds could change into soft leaves and flowers and find their way out to the light; and, to see how they were coming on, we used to dig up the larger ones, such as peas and beans, every day. My aunt had a corner assigned to her in our garden,

which she filled with lilies, and we all looked with the utmost respect and admiration at that precious lily-bed and wondered whether when we grew up we should ever be rich enough to own one anything like so grand. We imagined that each lily was worth an enormous sum of money and never dared to touch a single leaf or petal of them. We really stood in awe of them. Far, far was I then from the wild lily gardens of California that I was destined to see in their glory.

When I was a little boy at Mungo Siddons's school a flower-show was held in Dunbar, and I saw a number of the exhibitors carrying large handfuls of dahlias, the first I had ever seen. I thought them marvelous in size and beauty and, as in the case of my aunt's lilies, wondered if I should ever be rich enough to own some of them.

Although I never dared to touch my aunt's sacred lilies, I have good cause to remember stealing some common flowers from an apothecary, Peter Lawson, who also answered the purpose of a regular physician to most of the poor people of the town and adjacent country. He had a pony which was considered very wild and dangerous, and when he was called out of town he mounted this wonderful beast, which, after standing long in the stable, was frisky

and boisterous, and often to our delight reared and jumped and danced about from side to side of the street before he could be persuaded to go ahead. We boys gazed in awful admiration and wondered how the druggist could be so brave and able as to get on and stay on that wild beast's back. This famous Peter loved flowers and had a fine garden surrounded by an iron fence, through the bars of which, when I thought no one saw me, I oftentimes snatched a flower and took to my heels. One day Peter discovered me in this mischief, dashed out into the street and caught me. I screamed that I wouldna steal any more if he would let me go. He did n't say anything but just dragged me along to the stable where he kept the wild pony, pushed me in right back of its heels, and shut the door. I was screaming, of course, but as soon as I was imprisoned the fear of being kicked quenched all noise. I hardly dared breathe. My only hope was in motionless silence. Imagine the agony I endured! I did not steal any more of his flowers. He was a good hard judge of boy nature.

I was in Peter's hands some time before this, when I was about two and a half years old. The servant girl bathed us small folk before putting us to bed. The smarting soapy scrubbings of the Saturday nights in preparation

for the Sabbath were particularly severe, and we all dreaded them. My sister Sarah, the next older than me, wanted the long-legged stool I was sitting on awaiting my turn, so she just tipped me off. My chin struck on the edge of the bath-tub, and, as I was talking at the time, my tongue happened to be in the way of my teeth when they were closed by the blow, and a deep gash was cut on the side of it, which bled profusely. Mother came running at the noise I made, wrapped me up, put me in the servant girl's arms and told her to run with me through the garden and out by a back way to Peter Lawson to have something done to stop the bleeding. He simply pushed a wad of cotton into my mouth after soaking it in some brown astringent stuff, and told me to be sure to keep my mouth shut and all would soon be well. Mother put me to bed, calmed my fears, and told me to lie still and sleep like a gude bairn. But just as I was dropping off to sleep I swallowed the bulky wad of medicated cotton and with it, as I imagined, my tongue also. My screams over so great a loss brought mother, and when she anxiously took me in her arms and inquired what was the matter, I told her that I had swallowed my tongue. She only laughed at me, much to my astonishment, when I expected that she would bewail the

awful loss her boy had sustained. My sisters, who were older than I, oftentimes said when I happened to be talking too much, "It's a pity you had n't swallowed at least half of that long tongue of yours when you were little."

It appears natural for children to be fond of water, although the Scotch method of making every duty dismal contrived to make necessary bathing for health terrible to us. I well remember among the awful experiences of childhood being taken by the servant to the seashore when I was between two and three years old, stripped at the side of a deep pool in the rocks, plunged into it among crawling crawfish and slippery wriggling snake-like eels, and drawn up gasping and shrieking only to be plunged down again and again. As the time approached for this terrible bathing, I used to hide in the darkest corners of the house, and oftentimes a long search was required to find me. But after we were a few years older, we enjoyed bathing with other boys as we wandered along the shore, careful, however, not to get into a pool that had an invisible boy-devouring monster at the bottom of it. Such pools, miniature maelstroms, were called "sookin-in-goats" and were well known to most of us. Nevertheless we never ventured into any pool on strange parts of the coast before we had thrust a stick into it. If

the stick were not pulled out of our hands, we boldly entered and enjoyed plashing and ducking long ere we had learned to swim.

One of our best playgrounds was the famous old Dunbar Castle, to which King Edward fled after his defeat at Bannockburn. It was built more than a thousand years ago, and though we knew little of its history, we had heard many mysterious stories of the battles fought about its walls, and firmly believed that every bone we found in the ruins belonged to an ancient warrior. We tried to see who could climb highest on the crumbling peaks and crags, and took chances that no cautious mountaineer would try. That I did not fall and finish my rock-scrambling in those adventurous boyhood days seems now a reasonable wonder.

Among our best games were running, jumping, wrestling, and scrambling. I was so proud of my skill as a climber that when I first heard of hell from a servant girl who loved to tell its horrors and warn us that if we did anything wrong we would be cast into it, I always insisted that I could climb out of it. I imagined it was only a sooty pit with stone walls like those of the castle, and I felt sure there must be chinks and cracks in the masonry for fingers and toes. Anyhow the terrors of the horrible

place seldom lasted long beyond the telling; for natural faith casts out fear.

Most of the Scotch children believe in ghosts, and some under peculiar conditions continue to believe in them all through life. Grave ghosts are deemed particularly dangerous, and many of the most credulous will go far out of their way to avoid passing through or near a graveyard in the dark. After being instructed by the servants in the nature, looks, and habits of the various black and white ghosts, boowuzzies, and witches we often speculated as to whether they could run fast, and tried to believe that we had a good chance to get away from most of them. To improve our speed and wind, we often took long runs into the country. Tam o'Shanter's mare outran a lot of witches, — at least until she reached a place of safety beyond the keystone of the bridge, — and we thought perhaps we also might be able to outrun them.

Our house formerly belonged to a physician, and a servant girl told us that the ghost of the dead doctor haunted one of the unoccupied rooms in the second story that was kept dark on account of a heavy window-tax. Our bedroom was adjacent to the ghost room, which had in it a lot of chemical apparatus, — glass tubing, glass and brass retorts, test-tubes,

flasks, etc., — and we thought that those strange articles were still used by the old dead doctor in compounding physic. In the long summer days David and I were put to bed several hours before sunset. Mother tucked us in carefully, drew the curtains of the big old-fashioned bed, and told us to lie still and sleep like gude bairns; but we were usually out of bed, playing games of daring called "scootchers," about as soon as our loving mother reached the foot of the stairs, for we could n't lie still, however hard we might try. Going into the ghost room was regarded as a very great scootcher. After venturing in a few steps and rushing back in terror, I used to dare David to go as far without getting caught.

The roof of our house, as well as the crags and walls of the old castle, offered fine mountaineering exercise. Our bedroom was lighted by a dormer window. One night I opened it in search of good scootchers and hung myself out over the slates, holding on to the sill, while the wind was making a balloon of my nightgown. I then dared David to try the adventure, and he did. Then I went out again and hung by one hand, and David did the same. Then I hung by one finger, being careful not to slip, and he did that too. Then I stood on the sill and examined the edge of the left wall of the

LORNE TEMPERANCE HOTEL

window, crept up the slates along its side by slight finger-holds, got astride of the roof, sat there a few minutes looking at the scenery over the garden wall while the wind was howling and threatening to blow me off, then managed to slip down, catch hold of the sill, and get safely back into the room. But before attempting this scootcher, recognizing its dangerous character, with commendable caution I warned David that in case I should happen to slip I would grip the rain-trough when I was going over the eaves and hang on, and that he must then run fast downstairs and tell father to get a ladder for me, and tell him to be quick because I would soon be tired hanging dangling in the wind by my hands. After my return from this capital scootcher, David, not to be outdone, crawled up to the top of the window-roof, and got bravely astride of it; but in trying to return he lost courage and began to greet (to cry), "I canna get doon. Oh, I canna get doon." I leaned out of the window and shouted encouragingly, "Dinna greet, Davie, dinna greet, I'll help ye doon. If you greet, fayther will hear, and gee us baith an awfu' skelping." Then, standing on the sill and holding on by one hand to the window-casing, I directed him to slip his feet down within reach, and, after securing a good hold, I jumped

inside and dragged him in by his heels. This finished scootcher-scrambling for the night and frightened us into bed.

In the short winter days, when it was dark even at our early bedtime, we usually spent the hours before going to sleep playing voyages around the world under the bed-clothing. After mother had carefully covered us, bade us good-night and gone downstairs, we set out on our travels. Burrowing like moles, we visited France, India, America, Australia, New Zealand, and all the places we had ever heard of; our travels never ending until we fell asleep. When mother came to take a last look at us, before she went to bed, to see that we were covered, we were oftentimes covered so well that she had difficulty in finding us, for we were hidden in all sorts of positions where sleep happened to overtake us, but in the morning we always found ourselves in good order, lying straight like gude bairns, as she said.

Some fifty years later, when I visited Scotland, I got one of my Dunbar schoolmates to introduce me to the owners of our old home, from whom I obtained permission to go upstairs to examine our bedroom window and judge what sort of adventure getting on its roof must have been, and with all my after experience in mountaineering, I found that

what I had done in daring boyhood was now beyond my skill.

Boys are often at once cruel and merciful, thoughtlessly hard-hearted and tender-hearted, sympathetic, pitiful, and kind in ever-changing contrasts. Love of neighbors, human or animal, grows up amid savage traits, coarse and fine. When father made out to get us securely locked up in the back yard to prevent our shore and field wanderings, we had to play away the comparatively dull time as best we could. One of our amusements was hunting cats without seriously hurting them. These sagacious animals knew, however, that, though not very dangerous, boys were not to be trusted. One time in particular I remember, when we began throwing stones at an experienced old Tom, not wishing to hurt him much, though he was a tempting mark. He soon saw what we were up to, fled to the stable, and climbed to the top of the hay manger. He was still within range, however, and we kept the stones flying faster and faster, but he just blinked and played possum without wincing either at our best shots or at the noise we made. I happened to strike him pretty hard with a good-sized pebble, but he still blinked and sat still as if without feeling. "He must be mortally wounded," I said, "and now we must kill him

to put him out of pain," the savage in us rapidly growing with indulgence. All took heartily to this sort of cat mercy and began throwing the heaviest stones we could manage, but that old fellow knew what characters we were, and just as we imagined him mercifully dead he evidently thought the play was becoming too serious and that it was time to retreat; for suddenly with a wild whirr and gurr of energy he launched himself over our heads, rushed across the yard in a blur of speed, climbed to the roof of another building and over the garden wall, out of pain and bad company, with all his lives wide awake and in good working order.

After we had thus learned that Tom had at least nine lives, we tried to verify the common saying that no matter how far cats fell they always landed on their feet unhurt. We caught one in our back yard, not Tom but a smaller one of manageable size, and somehow got him smuggled up to the top story of the house. I don't know how in the world we managed to let go of him, for as soon as we opened the window and held him over the sill he knew his danger and made violent efforts to scratch and bite his way back into the room; but we determined to carry the thing through, and at last managed to drop him. I can remember to this

day how the poor creature in danger of his life strained and balanced as he was falling and managed to alight on his feet. This was a cruel thing for even wild boys to do, and we never tried the experiment again, for we sincerely pitied the poor fellow when we saw him creeping slowly away, stunned and frightened, with a swollen black and blue chin.

Again — showing the natural savagery of boys — we delighted in dog-fights, and even in the horrid red work of slaughter-houses, often running long distances and climbing over walls and roofs to see a pig killed, as soon as we heard the desperately earnest squealing. And if the butcher was good-natured, we begged him to let us get a near view of the mysterious insides and to give us a bladder to blow up for a foot-ball.

But here is an illustration of the better side of boy nature. In our back yard there were three elm trees and in the one nearest the house a pair of robin-redbreasts had their nest. When the young were almost able to fly, a troop of the celebrated "Scottish Grays," visited Dunbar, and three or four of the fine horses were lodged in our stable. When the soldiers were polishing their swords and helmets, they happened to notice the nest, and just as they were leaving, one of them climbed the tree and robbed it. With sore sympathy we watched

the young birds as the hard-hearted robber pushed them one by one beneath his jacket, — all but two that jumped out of the nest and tried to fly, but they were easily caught as they fluttered on the ground, and were hidden away with the rest. The distress of the bereaved parents, as they hovered and screamed over the frightened crying children they so long had loved and sheltered and fed, was pitiful to see; but the shining soldier rode grandly away on his big gray horse, caring only for the few pennies the young songbirds would bring and the beer they would buy, while we all, sisters and brothers, were crying and sobbing. I remember, as if it happened this day, how my heart fairly ached and choked me. Mother put us to bed and tried to comfort us, telling us that the little birds would be well fed and grow big, and soon learn to sing in pretty cages; but again and again we rehearsed the sad story of the poor bereaved birds and their frightened children, and could not be comforted. Father came into the room when we were half asleep and still sobbing, and I heard mother telling him that "a' the bairns' hearts were broken over the robbing of the nest in the elm."

After attaining the manly, belligerent age of five or six years, very few of my schooldays passed without a fist fight, and half a dozen

was no uncommon number. When any classmate of our own age questioned our rank and standing as fighters, we always made haste to settle the matter at a quiet place on the Davel Brae. To be a "gude fechter" was our highest ambition, our dearest aim in life in or out of school. To be a good scholar was a secondary consideration, though we tried hard to hold high places in our classes and gloried in being Dux. We fairly reveled in the battle stories of glorious William Wallace and Robert the Bruce, with which every breath of Scotch air is saturated, and of course we were all going to be soldiers. On the Davel Brae battleground we often managed to bring on something like real war, greatly more exciting than personal combat. Choosing leaders, we divided into two armies. In winter damp snow furnished plenty of ammunition to make the thing serious, and in summer sand and grass sods. Cheering and shouting some battle-cry such as "Bannockburn! Bannockburn! Scotland forever! The Last War in India!" we were led bravely on. For heavy battery work we stuffed our Scotch blue bonnets with snow and sand, sometimes mixed with gravel, and fired them at each other as cannon-balls.

Of course we always looked eagerly forward to vacation days and thought them slow in

coming. Old Mungo Siddons gave us a lot of gooseberries or currants and wished us a happy time. Some sort of special closing-exercises — singing, recitations, etc. — celebrated the great day, but I remember only the berries, freedom from school work, and opportunities for runaway rambles in the fields and along the wave-beaten seashore.

An exciting time came when at the age of seven or eight years I left the auld Davel Brae school for the grammar school. Of course I had a terrible lot of fighting to do, because a new scholar had to meet every one of his age who dared to challenge him, this being the common introduction to a new school. It was very strenuous for the first month or so, establishing my fighting rank, taking up new studies, especially Latin and French, getting acquainted with new classmates and the master and his rules. In the first few Latin and French lessons the new teacher, Mr. Lyon, blandly smiled at our comical blunders, but pedagogical weather of the severest kind quickly set in, when for every mistake, everything short of perfection, the taws was promptly applied. We had to get three lessons every day in Latin, three in French, and as many in English, besides spelling, history, arithmetic, and geography. Word lessons in particular, the wouldst-couldst-

shouldst-have-loved kind, were kept up, with much warlike thrashing, until I had committed the whole of the French, Latin, and English grammars to memory, and in connection with reading-lessons we were called on to recite parts of them with the rules over and over again, as if all the regular and irregular incomprehensible verb stuff was poetry. In addition to all this, father made me learn so many Bible verses every day that by the time I was eleven years of age I had about three fourths of the Old Testament and all of the New by heart and by sore flesh. I could recite the New Testament from the beginning of Matthew to the end of Revelation without a single stop. The dangers of cramming and of making scholars study at home instead of letting their little brains rest were never heard of in those days. We carried our school-books home in a strap every night and committed to memory our next day's lessons before we went to bed, and to do that we had to bend our attention as closely on our tasks as lawyers on great million-dollar cases. I can't conceive of anything that would now enable me to concentrate my attention more fully than when I was a mere stripling boy, and it was all done by whipping, — thrashing in general. Old-fashioned Scotch teachers spent no time in seeking short roads

to knowledge, or in trying any of the new-fangled psychological methods so much in vogue nowadays. There was nothing said about making the seats easy or the lessons easy. We were simply driven pointblank against our books like soldiers against the enemy, and sternly ordered, "Up and at 'em. Commit your lessons to memory!" If we failed in any part, however slight, we were whipped; for the grand, simple, all-sufficing Scotch discovery had been made that there was a close connection between the skin and the memory, and that irritating the skin excited the memory to any required degree.

Fighting was carried on still more vigorously in the high school than in the common school. Whenever any one was challenged, either the challenge was allowed or it was decided by a battle on the seashore, where with stubborn enthusiasm we battered each other as if we had not been sufficiently battered by the teacher. When we were so fortunate as to finish a fight without getting a black eye, we usually escaped a thrashing at home and another next morning at school, for other traces of the fray could be easily washed off at a well on the church brae, or concealed, or passed as results of playground accidents; but a black eye could never be explained away from downright fighting. A good

double thrashing was the inevitable penalty, but all without avail; fighting went on without the slightest abatement, like natural storms; for no punishment less than death could quench the ancient inherited belligerence burning in our pagan blood. Nor could we be made to believe it was fair that father and teacher should thrash us so industriously for our good, while begrudging us the pleasure of thrashing each other for our good. All these various thrashings, however, were admirably influential in developing not only memory but fortitude as well. For if we did not endure our school punishments and fighting pains without flinching and making faces, we were mocked on the playground, and public opinion on a Scotch playground was a powerful agent in controlling behavior; therefore we at length managed to keep our features in smooth repose while enduring pain that would try anybody but an American Indian. Far from feeling that we were called on to endure too much pain, one of our playground games was thrashing each other with whips about two feet long made from the tough, wiry stems of a species of polygonum fastened together in a stiff, firm braid. One of us handing two of these whips to a companion to take his choice, we stood up close together and thrashed each other on the legs

until one succumbed to the intolerable pain and thus lost the game. Nearly all of our playground games were strenuous, — shin-battering shinny, wrestling, prisoners' base, and dogs and hares, — all augmenting in no slight degree our lessons in fortitude. Moreover, we regarded our punishments and pains of every sort as training for war, since we were all going to be soldiers. Besides single combats we sometimes assembled on Saturdays to meet the scholars of another school, and very little was required for the growth of strained relations, and war. The immediate cause might be nothing more than a saucy stare. Perhaps the scholar stared at would insolently inquire, "What are ye glowerin' at, Bob?" Bob would reply, "I'll look where I hae a mind and hinder me if ye daur." "Weel, Bob," the outraged stared-at scholar would reply, "I'll soon let ye see whether I daur or no!" and give Bob a blow on the face. This opened the battle, and every good scholar belonging to either school was drawn into it. After both sides were sore and weary, a strong-lunged warrior would be heard above the din of battle shouting, "I'll tell ye what we'll dae wi' ye. If ye'll let us alane we'll let ye alane!" and the school war ended as most wars between nations do; and some of them begin in much the same way.

Notwithstanding the great number of harshly enforced rules, not very good order was kept in school in my time. There were two schools within a few rods of each other, one for mathematics, navigation, etc., the other, called the grammar school, that I attended. The masters lived in a big freestone house within eight or ten yards of the schools, so that they could easily step out for anything they wanted or send one of the scholars. The moment our master disappeared, perhaps for a book or a drink, every scholar left his seat and his lessons, jumped on top of the benches and desks or crawled beneath them, tugging, rolling, wrestling, accomplishing in a minute a depth of disorder and din unbelievable save by a Scottish scholar. We even carried on war, class against class, in those wild, precious minutes. A watcher gave the alarm when the master opened his house-door to return, and it was a great feat to get into our places before he entered, adorned in awful majestic authority, shouting "Silence!" and striking resounding blows with his cane on a desk or on some unfortunate scholar's back.

Forty-seven years after leaving this fighting school, I returned on a visit to Scotland, and a cousin in Dunbar introduced me to a minister who was acquainted with the history of the

school, and obtained for me an invitation to dine with the new master. Of course I gladly accepted, for I wanted to see the old place of fun and pain, and the battleground on the sands. Mr. Lyon, our able teacher and thrasher, I learned, had held his place as master of the school for twenty or thirty years after I left it, and had recently died in London, after preparing many young men for the English Universities. At the dinner-table, while I was recalling the amusements and fights of my old school-days, the minister remarked to the new master, "Now, don't you wish that you had been teacher in those days, and gained the honor of walloping John Muir?" This pleasure so merrily suggested showed that the minister also had been a fighter in his youth. The old freestone school building was still perfectly sound, but the carved, ink-stained desks were almost whittled away.

The highest part of our playground back of the school commanded a view of the sea, and we loved to watch the passing ships and, judging by their rigging, make guesses as to the ports they had sailed from, those to which they were bound, what they were loaded with, their tonnage, etc. In stormy weather they were all smothered in clouds and spray, and showers of salt scud torn from the tops of the waves came

flying over the playground wall. In those tremendous storms many a brave ship foundered or was tossed and smashed on the rocky shore. When a wreck occurred within a mile or two of the town, we often managed by running fast to reach it and pick up some of the spoils. In particular I remember visiting the battered fragments of an unfortunate brig or schooner that had been loaded with apples, and finding fine unpitiful sport in rushing into the spent waves and picking up the red-cheeked fruit from the frothy, seething foam.

All our school-books were extravagantly illustrated with drawings of every kind of sailing-vessel, and every boy owned some sort of craft whittled from a block of wood and trimmed with infinite pains, — sloops, schooners, brigs, and full-rigged ships, with their sails and string ropes properly adjusted and named for us by some old sailor. These precious toy craft with lead keels we learned to sail on a pond near the town. With the sails set at the proper angle to the wind, they made fast straight voyages across the pond to boys on the other side, who readjusted the sails and started them back on the return voyages. Oftentimes fleets of half a dozen or more were started together in exciting races.

Our most exciting sport, however, was play-

ing with gunpowder. We made guns out of gas-pipe, mounted them on sticks of any shape, clubbed our pennies together for powder, gleaned pieces of lead here and there and cut them into slugs, and, while one aimed, another applied a match to the touch-hole. With these awful weapons we wandered along the beach and fired at the gulls and solan-geese as they passed us. Fortunately we never hurt any of them that we knew of. We also dug holes in the ground, put in a handful or two of powder, tamped it well around a fuse made of a wheat-stalk, and, reaching cautiously forward, touched a match to the straw. This we called making earthquakes. Oftentimes we went home with singed hair and faces well peppered with powder-grains that could not be washed out. Then, of course, came a correspondingly severe punishment from both father and teacher.

Another favorite sport was climbing trees and scaling garden-walls. Boys eight or ten years of age could get over almost any wall by standing on each other's shoulders, thus making living ladders. To make walls secure against marauders, many of them were finished on top with broken bottles imbedded in lime, leaving the cutting edges sticking up; but with bunches of grass and weeds we could sit or stand in comfort on top of the jaggedest of them.

Like squirrels that begin to eat nuts before they are ripe, we began to eat apples about as soon as they were formed, causing, of course, desperate gastric disturbances to be cured by castor oil. Serious were the risks we ran in climbing and squeezing through hedges, and, of course, among the country folk we were far from welcome. Farmers passing us on the roads often shouted by way of greeting: "Oh, you vagabonds! Back to the toon wi' ye. Gang back where ye belang. You're up to mischief, Ise warrant. I can see it. The gamekeeper'll catch ye, and maist like ye'll a' be hanged some day."

Breakfast in those auld-lang-syne days was simple oatmeal porridge, usually with a little milk or treacle, served in wooden dishes called "luggies," formed of staves hooped together like miniature tubs about four or five inches in diameter. One of the staves, the lug or ear, a few inches longer than the others, served as a handle, while the number of luggies ranged in a row on a dresser indicated the size of the family. We never dreamed of anything to come after the porridge, or of asking for more. Our portions were consumed in about a couple of minutes; then off to school. At noon we came racing home ravenously hungry. The midday meal, called dinner, was usually vegetable

broth, a small piece of boiled mutton, and barley-meal scone. None of us liked the barley scone bread, therefore we got all we wanted of it, and in desperation had to eat it, for we were always hungry, about as hungry after as before meals. The evening meal was called "tea" and was served on our return from school. It consisted, as far as we children were concerned, of half a slice of white bread without butter, barley scone, and warm water with a little milk and sugar in it, a beverage called "content," which warmed but neither cheered nor inebriated. Immediately after tea we ran across the street with our books to Grandfather Gilrye, who took pleasure in seeing us and hearing us recite our next day's lessons. Then back home to supper, usually a boiled potato and piece of barley scone. Then family worship, and to bed.

Our amusements on Saturday afternoons and vacations depended mostly on getting away from home into the country, especially in the spring when the birds were calling loudest. Father sternly forbade David and me from playing truant in the fields with plundering wanderers like ourselves, fearing we might go on from bad to worse, get hurt in climbing over walls, caught by gamekeepers, or lost by falling over a cliff into the sea. "Play as much

as you like in the back yard and garden," he said, "and mind what you'll get when you forget and disobey." Thus he warned us with an awfully stern countenance, looking very hard-hearted, while naturally his heart was far from hard, though he devoutly believed in eternal punishment for bad boys both here and hereafter. Nevertheless, like devout martyrs of wildness, we stole away to the seashore or the green, sunny fields with almost religious regularity, taking advantage of opportunities when father was very busy, to join our companions, oftenest to hear the birds sing and hunt their nests, glorying in the number we had discovered and called our own. A sample of our nest chatter was something like this: Willie Chisholm would proudly exclaim — "I ken [know] seventeen nests, and you, Johnnie, ken only fifteen."

"But I wouldna gie my fifteen for your seventeen, for five of mine are larks and mavises. You ken only three o' the best singers."

"Yes, Johnnie, but I ken six goldies and you ken only one. Maist of yours are only sparrows and linties and robin-redbreasts."

Then perhaps Bob Richardson would loudly declare that he "kenned mair nests than onybody, for he kenned twenty-three, with about fifty eggs in them and mair than fifty young

birds — maybe a hundred. Some of them naething but raw gorblings but lots of them as big as their mithers and ready to flee. And aboot fifty craw's nests and three fox dens."

"Oh, yes, Bob, but that's no fair, for naebody counts craw's nests and fox holes, and then you live in the country at Belle-haven where ye have the best chance."

"Yes, but I ken a lot of bumbee's nests, baith the red-legged and the yellow-legged kind."

"Oh, wha cares for bumbee's nests!"

"Weel, but here's something! Ma father let me gang to a fox hunt, and man, it was grand to see the hounds and the lang-legged horses lowpin the dykes and burns and hedges!"

The nests, I fear, with the beautiful eggs and young birds, were prized quite as highly as the songs of the glad parents, but no Scotch boy that I know of ever failed to listen with enthusiasm to the songs of the skylarks. Oftentimes on a broad meadow near Dunbar we stood for hours enjoying their marvelous singing and soaring. From the grass where the nest was hidden the male would suddenly rise, as straight as if shot up, to a height of perhaps thirty or forty feet, and, sustaining himself with rapid wing-beats, pour down the most delicious melody, sweet and clear and strong, overflow-

ing all bounds, then suddenly he would soar higher again and again, ever higher and higher, soaring and singing until lost to sight even on perfectly clear days, and oftentimes in cloudy weather "far in the downy cloud," as the poet says.

To test our eyes we often watched a lark until he seemed a faint speck in the sky and finally passed beyond the keenest-sighted of us all. "I see him yet!" we would cry, "I see him yet!" "I see him yet!" "I see him yet!" as he soared. And finally only one of us would be left to claim that he still saw him. At last he, too, would have to admit that the singer had soared beyond his sight, and still the music came pouring down to us in glorious profusion, from a height far above our vision, requiring marvelous power of wing and marvelous power of voice, for that rich, delicious, soft, and yet clear music was distinctly heard long after the bird was out of sight. Then, suddenly ceasing, the glorious singer would appear, falling like a bolt straight down to his nest, where his mate was sitting on the eggs.

It was far too common a practice among us to carry off a young lark just before it could fly, place it in a cage, and fondly, laboriously feed it. Sometimes we succeeded in keeping one alive for a year or two, and when awakened

by the spring weather it was pitiful to see the quivering imprisoned soarer of the heavens rapidly beating its wings and singing as though it were flying and hovering in the air like its parents. To keep it in health we were taught that we must supply it with a sod of grass the size of the bottom of the cage, to make the poor bird feel as though it were at home on its native meadow, — a meadow perhaps a foot or at most two feet square. Again and again it would try to hover over that miniature meadow from its miniature sky just underneath the top of the cage. At last, conscience-stricken, we carried the beloved prisoner to the meadow west of Dunbar where it was born, and, blessing its sweet heart, bravely set it free, and our exceeding great reward was to see it fly and sing in the sky.

In the winter, when there was but little doing in the fields, we organized running-matches. A dozen or so of us would start out on races that were simply tests of endurance, running on and on along a public road over the breezy hills like hounds, without stopping or getting tired. The only serious trouble we ever felt in these long races was an occasional stitch in our sides. One of the boys started the story that sucking raw eggs was a sure cure for the stitches. We had hens in our back yard, and

on the next Saturday we managed to swallow a couple of eggs apiece, a disgusting job, but we would do almost anything to mend our speed, and as soon as we could get away after taking the cure we set out on a ten or twenty mile run to prove its worth. We thought nothing of running right ahead ten or a dozen miles before turning back; for we knew nothing about taking time by the sun, and none of us had a watch in those days. Indeed, we never cared about time until it began to get dark. Then we thought of home and the thrashing that awaited us. Late or early, the thrashing was sure, unless father happened to be away. If he was expected to return soon, mother made haste to get us to bed before his arrival. We escaped the thrashing next morning, for father never felt like thrashing us in cold blood on the calm holy Sabbath. But no punishment, however sure and severe, was of any avail against the attraction of the fields and woods. It had other uses, developing memory, etc., but in keeping us at home it was of no use at all. Wildness was ever sounding in our ears, and Nature saw to it that besides school lessons and church lessons some of her own lessons should be learned, perhaps with a view to the time when we should be called to wander in wildness to our heart's content. Oh, the blessed en-

chantment of those Saturday runaways in the prime of the spring! How our young wondering eyes reveled in the sunny, breezy glory of the hills and the sky, every particle of us thrilling and tingling with the bees and glad birds and glad streams! Kings may be blessed; we were glorious, we were free, — school cares and scoldings, heart thrashings and flesh thrashings alike, were forgotten in the fullness of Nature's glad wildness. These were my first excursions, — the beginnings of lifelong wanderings.

CHAPTER II

A NEW WORLD

Our grammar-school reader, called, I think, "Maccoulough's Course of Reading," contained a few natural-history sketches that excited me very much and left a deep impression, especially a fine description of the fish hawk and the bald eagle by the Scotch ornithologist Wilson, who had the good fortune to wander for years in the American woods while the country was yet mostly wild. I read his description over and over again, till I got the vivid picture he drew by heart, — the long-winged hawk circling over the heaving waves, every motion watched by the eagle perched on the top of a crag or dead tree; the fish hawk poising for a moment to take aim at a fish and plunging under the water; the eagle with kindling eye spreading his wings ready for instant flight in case the attack should prove successful; the hawk emerging with a struggling fish in his talons, and proud flight; the eagle launching himself in pursuit; the wonderful wing-work in the sky, the fish hawk, though encumbered with his prey, circling higher, higher, striving hard to keep above the robber eagle; the eagle at length

soaring above him, compelling him with a cry of despair to drop his hard-won prey; then the eagle steadying himself for a moment to take aim, descending swift as a lightning-bolt, and seizing the falling fish before it reached the sea.

Not less exciting and memorable was Audubon's wonderful story of the passenger pigeon, a beautiful bird flying in vast flocks that darkened the sky like clouds, countless millions assembling to rest and sleep and rear their young in certain forests, miles in length and breadth, fifty or a hundred nests on a single tree; the overloaded branches bending low and often breaking; the farmers gathering from far and near, beating down countless thousands of the young and old birds from their nests and roosts with long poles at night, and in the morning driving their bands of hogs, some of them brought from farms a hundred miles distant, to fatten on the dead and wounded covering the ground.

In another of our reading-lessons some of the American forests were described. The most interesting of the trees to us boys was the sugar maple, and soon after we had learned this sweet story we heard everybody talking about the discovery of gold in the same wonder-filled country.

One night, when David and I were at grand-

father's fireside solemnly learning our lessons as usual, my father came in with news, the most wonderful, most glorious, that wild boys ever heard. "Bairns," he said, "you needna learn your lessons the nicht, for we're gan to America the morn!" No more grammar, but boundless woods full of mysterious good things; trees full of sugar, growing in ground full of gold; hawks, eagles, pigeons, filling the sky; millions of birds' nests, and no gamekeepers to stop us in all the wild, happy land. We were utterly, blindly glorious. After father left the room, grandfather gave David and me a gold coin apiece for a keepsake, and looked very serious, for he was about to be deserted in his lonely old age. And when we in fullness of young joy spoke of what we were going to do, of the wonderful birds and their nests that we should find, the sugar and gold, etc., and promised to send him a big box full of that tree sugar packed in gold from the glorious paradise over the sea, poor lonely grandfather, about to be forsaken, looked with downcast eyes on the floor and said in a low, trembling, troubled voice, "Ah, poor laddies, poor laddies, you'll find something else ower the sea forbye gold and sugar, birds' nests and freedom fra lessons and schools. You'll find plenty hard, hard work." And so we did. But nothing he could

say could cloud our joy or abate the fire of youthful, hopeful, fearless adventure. Nor could we in the midst of such measureless excitement see or feel the shadows and sorrows of his darkening old age. To my schoolmates, met that night on the street, I shouted the glorious news, "I'm gan to Amaraka the morn!" None could believe it. I said, "Weel, just you see if I am at the skule the morn!"

Next morning we went by rail to Glasgow and thence joyfully sailed away from beloved Scotland, flying to our fortunes on the wings of the winds, care-free as thistle seeds. We could not then know what we were leaving, what we were to encounter in the New World, nor what our gains were likely to be. We were too young and full of hope for fear or regret, but not too young to look forward with eager enthusiasm to the wonderful schoolless bookless American wilderness. Even the natural heart-pain of parting from grandfather and grandmother Gilrye, who loved us so well, and from mother and sisters and brother, was quickly quenched in young joy. Father took with him only my sister Sarah (thirteen years of age), myself (eleven), and brother David (nine), leaving my eldest sister, Margaret, and the three youngest of the family, Daniel, Mary, and Anna, with mother, to join us after a farm had been found

in the wilderness and a comfortable house made to receive them.

In crossing the Atlantic before the days of steamships, or even the American clippers, the voyages made in old-fashioned sailing-vessels were very long. Ours was six weeks and three days. But because we had no lessons to get, that long voyage had not a dull moment for us boys. Father and sister Sarah, with most of the old folk, stayed below in rough weather, groaning in the miseries of seasickness, many of the passengers wishing they had never ventured in "the auld rockin'creel," as they called our bluff-bowed, wave-beating ship, and, when the weather was moderately calm, singing songs in the evenings, — "The Youthful Sailor Frank and Bold," "Oh, why left I my hame, why did I cross the deep," etc. But no matter how much the old tub tossed about and battered the waves, we were on deck every day, not in the least seasick, watching the sailors at their rope-hauling and climbing work; joining in their songs, learning the names of the ropes and sails, and helping them as far as they would let us; playing games with other boys in calm weather when the deck was dry, and in stormy weather rejoicing in sympathy with the big curly-topped waves.

The captain occasionally called David and

me into his cabin and asked us about our schools, handed us books to read, and seemed surprised to find that Scotch boys could read and pronounce English with perfect accent and knew so much Latin and French. In Scotch schools only pure English was taught, although not a word of English was spoken out of school. All through life, however well educated, the Scotch spoke Scotch among their own folk, except at times when unduly excited on the only two subjects on which Scotchmen get much excited, namely, religion and politics. So long as the controversy went on with fairly level temper, only gude braid Scots was used, but if one became angry, as was likely to happen, then he immediately began speaking severely correct English, while his antagonist, drawing himself up, would say: "Weel, there's na use pursuing this subject ony further, for I see ye hae gotten to your English."

As we neared the shore of the great new land, with what eager wonder we watched the whales and dolphins and porpoises and seabirds, and made the good-natured sailors teach us their names and tell us stories about them!

There were quite a large number of emigrants aboard, many of them newly married couples, and the advantages of the different parts of the New World they expected to settle in were

often discussed. My father started with the intention of going to the backwoods of Upper Canada. Before the end of the voyage, however, he was persuaded that the States offered superior advantages, especially Wisconsin and Michigan, where the land was said to be as good as in Canada and far more easily brought under cultivation; for in Canada the woods were so close and heavy that a man might wear out his life in getting a few acres cleared of trees and stumps. So he changed his mind and concluded to go to one of the Western States.

On our wavering westward way a grain-dealer in Buffalo told father that most of the wheat he handled came from Wisconsin; and this influential information finally determined my father's choice. At Milwaukee a farmer who had come in from the country near Fort Winnebago with a load of wheat agreed to haul us and our formidable load of stuff to a little town called Kingston for thirty dollars. On that hundred-mile journey, just after the spring thaw, the roads over the prairies were heavy and miry, causing no end of lamentation, for we often got stuck in the mud, and the poor farmer sadly declared that never, never again would he be tempted to try to haul such a cruel, heart-breaking, wagon-breaking, horse-killing load, no, not for a hundred dollars. In leaving

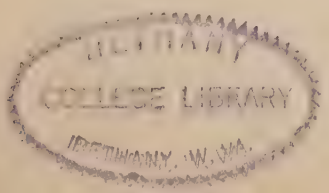
Scotland, father, like many other home-seekers, burdened himself with far too much luggage, as if all America were still a wilderness in which little or nothing could be bought. One of his big iron-bound boxes must have weighed about four hundred pounds, for it contained an old-fashioned beam-scales with a complete set of cast-iron counterweights, two of them fifty-six pounds each, a twenty-eight, and so on down to a single pound. Also a lot of iron wedges, carpenter's tools, and so forth, and at Buffalo, as if on the very edge of the wilderness, he gladly added to his burden a big cast-iron stove with pots and pans, provisions enough for a long siege, and a scythe and cumbersome cradle for cutting wheat, all of which he succeeded in landing in the primeval Wisconsin woods.

A land-agent at Kingston gave father a note to a farmer by the name of Alexander Gray, who lived on the border of the settled part of the country, knew the section-lines, and would probably help him to find a good place for a farm. So father went away to spy out the land, and in the mean time left us children in Kingston in a rented room. It took us less than an hour to get acquainted with some of the boys in the village; we challenged them to wrestle, run races, climb trees, etc., and in a

day or two we felt at home, care-free and happy, notwithstanding our family was so widely divided. When father returned he told us that he had found fine land for a farm in sunny open woods on the side of a lake, and that a team of three yoke of oxen with a big wagon was coming to haul us to Mr. Gray's place.

We enjoyed the strange ten-mile ride through the woods very much, wondering how the great oxen could be so strong and wise and tame as to pull so heavy a load with no other harness than a chain and a crooked piece of wood on their necks, and how they could sway so obediently to right and left past roadside trees and stumps when the driver said *haw* and *gee*. At Mr. Gray's house, father again left us for a few days to build a shanty on the quarter-section he had selected four or five miles to the westward. In the mean while we enjoyed our freedom as usual, wandering in the fields and meadows, looking at the trees and flowers, snakes and birds and squirrels. With the help of the nearest neighbors the little shanty was built in less than a day after the rough bur-oak logs for the walls and the white-oak boards for the floor and roof were got together.

To this charming hut, in the sunny woods, overlooking a flowery glacier meadow and a lake rimmed with white water-lilies, we were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hauled by an ox-team across trackless carex swamps and low rolling hills sparsely dotted with round-headed oaks. Just as we arrived at the shanty, before we had time to look at it or the scenery about it, David and I jumped down in a hurry off the load of household goods, for we had discovered a blue jay's nest, and in a minute or so we were up the tree beside it, feasting our eyes on the beautiful green eggs and beautiful birds, — our first memorable discovery. The handsome birds had not seen Scotch boys before and made a desperate screaming as if we were robbers like themselves, though we left the eggs untouched, feeling that we were already beginning to get rich, and wondering how many more nests we should find in the grand sunny woods. Then we ran along the brow of the hill that the shanty stood on, and down to the meadow, searching the trees and grass tufts and bushes, and soon discovered a bluebird's and a woodpecker's nest, and began an acquaintance with the frogs and snakes and turtles in the creeks and springs.

This sudden plash into pure wildness — baptism in Nature's warm heart — how utterly happy it made us! Nature streaming into us, wooingly teaching her wonderful glowing lessons, so unlike the dismal grammar ashes and cinders so long thrashed into us. Here

MUIR'S LAKE (FOUNTAIN LAKE) AND THE GARDEN MEADOW

Sketched from the roof of the Bur-Oak Shanty

without knowing it we still were at school; every wild lesson a love lesson, not whipped but charmed into us. Oh, that glorious Wisconsin wilderness! Everything new and pure in the very prime of the spring when Nature's pulses were beating highest and mysteriously keeping time with our own! Young hearts, young leaves, flowers, animals, the winds and the streams and the sparkling lake, all wildly, gladly rejoicing together!

Next morning, when we climbed to the precious jay nest to take another admiring look at the eggs, we found it empty. Not a shell-fragment was left, and we wondered how in the world the birds were able to carry off their thin-shelled eggs either in their bills or in their feet without breaking them, and how they could be kept warm while a new nest was being built. Well, I am still asking these questions. When I was on the Harriman Expedition I asked Robert Ridgway, the eminent ornithologist, how these sudden flittings were accomplished, and he frankly confessed that he did n't know, but guessed that jays and many other birds carried their eggs in their mouths; and when I objected that a jay's mouth seemed too small to hold its eggs, he replied that birds' mouths were larger than the narrowness of their bills indicated. Then I asked him what he thought

they did with the eggs while a new nest was being prepared. He did n't know; neither do I to this day. A specimen of the many puzzling problems presented to the naturalist.

We soon found many more nests belonging to birds that were not half so suspicious. The handsome and notorious blue jay plunders the nests of other birds and of course he could not trust us. Almost all the others — brown thrushes, bluebirds, song sparrows, kingbirds, hen-hawks, nighthawks, whip-poor-wills, woodpeckers, etc. — simply tried to avoid being seen, to draw or drive us away, or paid no attention to us.

We used to wonder how the woodpeckers could bore holes so perfectly round, true mathematical circles. We ourselves could not have done it even with gouges and chisels. We loved to watch them feeding their young, and wondered how they could glean food enough for so many clamorous, hungry, unsatisfiable babies, and how they managed to give each one its share; for after the young grew strong, one would get his head out of the door-hole and try to hold possession of it to meet the food-laden parents. How hard they worked to support their families, especially the red-headed and speckledy woodpeckers and flickers; digging, hammering on scaly bark and decaying trunks

and branches from dawn to dark, coming and going at intervals of a few minutes all the livelong day!

We discovered a hen-hawk's nest on the top of a tall oak thirty or forty rods from the shanty and approached it cautiously. One of the pair always kept watch, soaring in wide circles high above the tree, and when we attempted to climb it, the big dangerous-looking bird came swooping down at us and drove us away.

We greatly admired the plucky kingbird. In Scotland our great ambition was to be good fighters, and we admired this quality in the handsome little chattering flycatcher that whips all the other birds. He was particularly angry when plundering jays and hawks came near his home, and took pains to thrash them not only away from the nest-tree but out of the neighborhood. The nest was usually built on a bur oak near a meadow where insects were abundant, and where no undesirable visitor could approach without being discovered. When a hen-hawk hove in sight, the male immediately set off after him, and it was ridiculous to see that great, strong bird hurrying away as fast as his clumsy wings would carry him, as soon as he saw the little, waspish kingbird coming. But the kingbird easily overtook him, flew just a few feet above him, and with

a lot of chattering, scolding notes kept diving and striking him on the back of the head until tired; then he alighted to rest on the hawk's broad shoulders, still scolding and chattering as he rode along, like an angry boy pouring out vials of wrath. Then, up and at him again with his sharp bill; and after he had thus driven and ridden his big enemy a mile or so from the nest, he went home to his mate, chuckling and bragging as if trying to tell her what a wonderful fellow he was.

This first spring, while some of the birds were still building their nests and very few young ones had yet tried to fly, father hired a Yankee to assist in clearing eight or ten acres of the best ground for a field. We found new wonders every day and often had to call on this Yankee to solve puzzling questions. We asked him one day if there was any bird in America that the kingbird could n't whip. What about the sandhill crane? Could he whip that long-legged, long-billed fellow?

"A crane never goes near kingbirds' nests or notices so small a bird," he said, "and therefore there could be no fighting between them." So we hastily concluded that our hero could whip every bird in the country except perhaps the sandhill crane.

We never tired listening to the wonderful

whip-poor-will." One came every night about dusk and sat on a log about twenty or thirty feet from our cabin door and began shouting "Whip poor Will! Whip poor Will!" with loud emphatic earnestness. "What's that? What's that?" we cried when this startling visitor first announced himself. "What do you call it?"

"Why, it's telling you its name," said the Yankee. "Don't you hear it and what he wants you to do? He says his name is 'Poor Will' and he wants you to whip him, and you may if you are able to catch him." Poor Will seemed the most wonderful of all the strange creatures we had seen. What a wild, strong, bold voice he had, unlike any other we had ever heard on sea or land!

A near relative, the bull-bat, or nighthawk, seemed hardly less wonderful. Towards evening scattered flocks kept the sky lively as they circled around on their long wings a hundred feet or more above the ground, hunting moths and beetles, interrupting their rather slow but strong, regular wing-beats at short intervals with quick quivering strokes while uttering keen, squeaky cries something like *pfee, pfee,* and every now and then diving nearly to the ground with a loud ripping, bellowing sound, like bull-roaring, suggesting its name; then turning and gliding swiftly up again. These fine wild

gray birds, about the size of a pigeon, lay their two eggs on bare ground without anything like a nest or even a concealing bush or grass-tuft. Nevertheless they are not easily seen, for they are colored like the ground. While sitting on their eggs, they depend so much upon not being noticed that if you are walking rapidly ahead they allow you to step within an inch or two of them without flinching. But if they see by your looks that you have discovered them, they leave their eggs or young, and, like a good many other birds, pretend that they are sorely wounded, fluttering and rolling over on the ground and gasping as if dying, to draw you away. When pursued we were surprised to find that just when we were on the point of overtaking them they were always able to flutter a few yards farther, until they had led us about a quarter of a mile from the nest; then, suddenly getting well, they quietly flew home by a roundabout way to their precious babies or eggs, o'er a' the ills of life victorious, bad boys among the worst. The Yankee took particular pleasure in encouraging us to pursue them.

Everything about us was so novel and wonderful that we could hardly believe our senses except when hungry or while father was thrashing us. When we first saw Fountain Lake Meadow, on a sultry evening, sprinkled with

millions of lightning-bugs throbbing with light, the effect was so strange and beautiful that it seemed far too marvelous to be real. Looking from our shanty on the hill, I thought that the whole wonderful fairy show must be in my eyes; for only in fighting, when my eyes were struck, had I ever seen anything in the least like it. But when I asked my brother if he saw anything strange in the meadow he said, "Yes, it's all covered with shaky fire-sparks." Then I guessed that it might be something outside of us, and applied to our all-knowing Yankee to explain it. "Oh, it's nothing but lightnin'-bugs," he said, and kindly led us down the hill to the edge of the fiery meadow, caught a few of the wonderful bugs, dropped them into a cup, and carried them to the shanty, where we watched them throbbing and flashing out their mysterious light at regular intervals, as if each little passionate glow were caused by the beating of a heart. Once I saw a splendid display of glow-worm light in the foothills of the Himalayas, north of Calcutta, but glorious as it appeared in pure starry radiance, it was far less impressive than the extravagant abounding, quivering, dancing fire on our Wisconsin meadow.

Partridge drumming was another great marvel. When I first heard the low, soft, solemn

sound I thought it must be made by some strange disturbance in my head or stomach, but as all seemed serene within, I asked David whether he heard anything queer. "Yes," he said, "I hear something saying *boomp, boomp, boomp*, and I'm wondering at it." Then I was half satisfied that the source of the mysterious sound must be in something outside of us, coming perhaps from the ground or from some ghost or bogie or woodland fairy. Only after long watching and listening did we at last discover it in the wings of the plump brown bird.

The love-song of the common jack snipe seemed not a whit less mysterious than partridge drumming. It was usually heard on cloudy evenings, a strange, unearthly, winnowing, spiritlike sound, yet easily heard at a distance of a third of a mile. Our sharp eyes soon detected the bird while making it, as it circled high in the air over the meadow with wonderfully strong and rapid wing-beats, suddenly descending and rising, again and again, in deep, wide loops; the tones being very low and smooth at the beginning of the descent, rapidly increasing to a curious little whirling storm-roar at the bottom, and gradually fading lower and lower until the top was reached. It was long, however, before we identified this mysteri-

out wing-singer as the little brown jack snipe that we knew so well and had so often watched as he silently probed the mud around the edge of our meadow stream and spring-holes, and made short zigzag flights over the grass uttering only little short, crisp quacks and chucks.

The love-songs of the frogs seemed hardly less wonderful than those of the birds, their musical notes varying from the sweet, tranquil, soothing peeping and purring of the hylas to the awfully deep low-bass blunt bellowing of the bullfrogs. Some of the smaller species have wonderfully clear, sharp voices and told us their good Bible names in musical tones about as plainly as the whip-poor-will. *Isaac, Isaac; Yacob, Yacob; Israel, Israel;* shouted in sharp, ringing, far-reaching tones, as if they had all been to school and severely drilled in elocution. In the still, warm evenings, big bunchy bullfrogs bellowed, *Drunk! Drunk! Drunk! Jug o' rum! Jug o' rum!* and early in the spring, countless thousands of the commonest species, up to the throat in cold water, sang in concert, making a mass of music, such as it was, loud enough to be heard at a distance of more than half a mile.

Far, far apart from this loud marsh music is that of the many species of hyla, a sort of soothing immortal melody filling the air like light.

We reveled in the glory of the sky scenery as well as that of the woods and meadows and rushy, lily-bordered lakes. The great thunder-storms in particular interested us, so unlike any seen in Scotland, exciting awful, wondering admiration. Gazing awe-stricken, we watched the upbuilding of the sublime cloud-mountains, — glowing, sun-beaten pearl and alabaster cumuli, glorious in beauty and majesty and looking so firm and lasting that birds, we thought, might build their nests amid their downy bosses; the black-browed storm-clouds marching in awful grandeur across the land-scape, trailing broad gray sheets of hail and rain like vast cataracts, and ever and anon flashing down vivid zigzag lightning followed by terrible crashing thunder. We saw several trees shattered, and one of them, a punky old oak, was set on fire, while we wondered why all the trees and everybody and everything did not share the same fate, for oftentimes the whole sky blazed. After sultry storm days, many of the nights were darkened by smooth black apparently structureless cloud-mantles which at short intervals were illumined with startling suddenness to a fiery glow by quick, quivering lightning-flashes, revealing the land-scape in almost noonday brightness, to be in-stantly quenched in solid blackness.

But those first days and weeks of unmixed enjoyment and freedom, reveling in the wonderful wildness about us, were soon to be mingled with the hard work of making a farm. I was first put to burning brush in clearing land for the plough. Those magnificent brush fires with great white hearts and red flames, the first big, wild outdoor fires I had ever seen, were wonderful sights for young eyes. Again and again, when they were burning fiercest so that we could hardly approach near enough to throw on another branch, father put them to awfully practical use as warning lessons, comparing their heat with that of hell, and the branches with bad boys. "Now, John," he would say, — "now, John, just think what an awful thing it would be to be thrown into that fire: — and then think of hell-fire, that is so many times hotter. Into that fire all bad boys, with sinners of every sort who disobey God, will be cast as we are casting branches into this brush fire, and although suffering so much, their sufferings will never, never end, because neither the fire nor the sinners can die." But those terrible fire lessons quickly faded away in the blithe wilderness air; for no fire can be hotter than the heavenly fire of faith and hope that burns in every healthy boy's heart.

Soon after our arrival in the woods some one

added a cat and puppy to the animals father had bought. The cat soon had kittens, and it was interesting to watch her feeding, protecting, and training them. After they were able to leave their nest and play, she went out hunting and brought in many kinds of birds and squirrels for them, mostly ground squirrels (spermophiles), called "gophers" in Wisconsin. When she got within a dozen yards or so of the shanty, she announced her approach by a peculiar call, and the sleeping kittens immediately bounced up and ran to meet her, all racing for the first bite of they knew not what, and we too ran to see what she brought. She then lay down a few minutes to rest and enjoy the enjoyment of her feasting family, and again vanished in the grass and flowers, coming and going every half-hour or so. Sometimes she brought in birds that we had never seen before, and occasionally a flying squirrel, chipmunk, or big fox squirrel. We were just old enough, David and I, to regard all these creatures as wonders, the strange inhabitants of our new world.

The pup was a common cur, though very uncommon to us, a black and white short-haired mongrel that we named "Watch." We always gave him a pan of milk in the evening just before we knelt in family worship, while day-

light still lingered in the shanty. And, instead of attending to the prayers, I too often studied the small wild creatures playing around us. Field mice scampered about the cabin as though it had been built for them alone, and their performances were very amusing. About dusk, on one of the calm, sultry nights so grateful to moths and beetles, when the puppy was lapping his milk, and we were on our knees, in through the door came a heavy broad-shouldered beetle about as big as a mouse, and after it had droned and boomed round the cabin two or three times, the pan of milk, showing white in the gloaming, caught its eyes, and, taking good aim, it alighted with a slanting, glinting plash in the middle of the pan like a duck alighting in a lake. Baby Watch, having never before seen anything like that beetle, started back, gazing in dumb astonishment and fear at the black sprawling monster trying to swim. Recovering somewhat from his fright, he began to bark at the creature, and ran round and round his milk-pan, wouf-woufing, gurring, growling, like an old dog barking at a wild-cat or a bear. The natural astonishment and curiosity of that boy dog getting his first entomological lesson in this wonderful world was so immoderately funny that I had great difficulty in keeping from laughing out loud.

Snapping turtles were common throughout the woods, and we were delighted to find that they would snap at a stick and hang on like bull-dogs; and we amused ourselves by introducing Watch to them, enjoying his curious behavior and theirs in getting acquainted with each other. One day we assisted one of the smallest of the turtles to get a good grip of poor Watch's ear. Then away he rushed, holding his head sidewise, yelping and terror-stricken, with the strange buglike reptile biting hard and clinging fast — a shameful amusement even for wild boys.

As a playmate Watch was too serious, though he learned more than any stranger would judge him capable of, was a bold, faithful watch-dog, and in his prime a grand fighter, able to whip all the other dogs in the neighborhood. Comparing him with ourselves, we soon learned that although he could not read books he could read faces, was a good judge of character, always knew what was going on and what we were about to do, and liked to help us. We could run nearly as fast as he could, see about as far, and perhaps hear as well, but in sense of smell his nose was incomparably better than ours. One sharp winter morning when the ground was covered with snow, I noticed that when he was yawning and stretching himself after leav-

ing his bed he suddenly caught the scent of something that excited him, went round the corner of the house, and looked intently to the westward across a tongue of land that we called West Bank, eagerly questioning the air with quivering nostrils, and bristling up as though he felt sure that there was something dangerous in that direction and had actually caught sight of it. Then he ran toward the Bank, and I followed him, curious to see what his nose had discovered. The top of the Bank commanded a view of the north end of our lake and meadow, and when we got there we saw an Indian hunter with a long spear, going from one muskrat cabin to another, approaching cautiously, careful to make no noise, and then suddenly thrusting his spear down through the house. If well aimed, the spear went through the poor beaver rat as it lay cuddled up in the snug nest it had made for itself in the fall with so much far-seeing care, and when the hunter felt the spear quivering, he dug down the mossy hut with his tomahawk and secured his prey, — the flesh for food, and the skin to sell for a dime or so. This was a clear object lesson on dogs' keenness of scent. That Indian was more than half a mile away across a wooded ridge. Had the hunter been a white man, I suppose Watch would not have noticed him.

When he was about six or seven years old, he not only became cross, so that he would do only what he liked, but he fell on evil ways, and was accused by the neighbors who had settled around us of catching and devouring whole broods of chickens, some of them only a day or two out of the shell. We never imagined he would do anything so grossly undoglike. He never did at home. But several of the neighbors declared over and over again that they had caught him in the act, and insisted that he must be shot. At last, in spite of tearful protests, he was condemned and executed. Father examined the poor fellow's stomach in search of sure evidence, and discovered the heads of eight chickens that he had devoured at his last meal. So poor Watch was killed simply because his taste for chickens was too much like our own. Think of the millions of squabs that preaching, praying men and women kill and eat, with all sorts of other animals great and small, young and old, while eloquently discoursing on the coming of the blessed peaceful, bloodless millennium! Think of the passenger pigeons that fifty or sixty years ago filled the woods and sky over half the continent, now exterminated by beating down the young from the nests together with the brooding parents, before they could try their wonderful wings;

by trapping them in nets, feeding them to hogs, etc. None of our fellow mortals is safe who eats what we eat, who in any way interferes with our pleasures, or who may be used for work or food, clothing or ornament, or mere cruel, sportish amusement. Fortunately many are too small to be seen, and therefore enjoy life beyond our reach. And in looking through God's great stone books made up of records reaching back millions and millions of years, it is a great comfort to learn that vast multitudes of creatures, great and small and infinite in number, lived and had a good time in God's love before man was created.

The old Scotch fashion of whipping for every act of disobedience or of simple, playful forgetfulness was still kept up in the wilderness, and of course many of those whippings fell upon me. Most of them were outrageously severe, and utterly barren of fun. But here is one that was nearly all fun.

Father was busy hauling lumber for the frame house that was to be got ready for the arrival of my mother, sisters, and brother, left behind in Scotland. One morning, when he was ready to start for another load, his ox-whip was not to be found. He asked me if I knew anything about it. I told him I did n't know where it was, but Scotch conscience compelled me to

confess that when I was playing with it I had tied it to Watch's tail, and that he ran away, dragging it through the grass, and came back without it. "It must have slipped off his tail," I said, and so I did n't know where it was. This honest, straightforward little story made father so angry that he exclaimed with heavy, foreboding emphasis: "The very deevil 's in that boy!" David, who had been playing with me and was perhaps about as responsible for the loss of the whip as I was, said never a word, for he was always prudent enough to hold his tongue when the parental weather was stormy, and so escaped nearly all punishment. And, strange to say, this time I also escaped, all except a terrible scolding, though the thrashing weather seemed darker than ever. As if unwilling to let the sun see the shameful job, father took me into the cabin where the storm was to fall, and sent David to the woods for a switch. While he was out selecting the switch, father put in the spare time sketching my play-wickedness in awful colors, and of course referred again and again to the place prepared for bad boys. In the midst of this terrible word-storm, dreading most the impending thrashing, I whimpered that I was only playing because I could n't help it; did n't know I was doing wrong;

would n't do it again, and so forth. After this miserable dialogue was about exhausted, father became impatient at my brother for taking so long to find the switch; and so was I, for I wanted to have the thing over and done with. At last, in came David, a picture of open-hearted innocence, solemnly dragging a young bur-oak sapling, and handed the end of it to father, saying it was the best switch he could find. It was an awfully heavy one, about two and a half inches thick at the butt and ten feet long, almost big enough for a fence-pole. There was n't room enough in the cabin to swing it, and the moment I saw it I burst out laughing in the midst of my fears. But father failed to see the fun and was very angry at David, heaved the bur-oak outside and passionately demanded his reason for fetching "sic a muckle rail like that instead o' a switch? Do ye ca' that a switch? I have a gude mind to thrash you insteed o' John." David, with demure, downcast eyes, looked preternaturally righteous, but as usual prudently answered never a word.

It was a hard job in those days to bring up Scotch boys in the way they should go; and poor overworked father was determined to do it if enough of the right kind of switches could be found. But this time, as the sun was getting

high, he hitched up old Tom and Jerry and made haste to the Kingston lumber-yard, leaving me unscathed and as innocently wicked as ever; for hardly had father got fairly out of sight among the oaks and hickories, ere all our troubles, hell-threatenings, and exhortations were forgotten in the fun we had lassoing a stubborn old sow and laboriously trying to teach her to go reasonably steady in rope harness. She was the first hog that father bought to stock the farm, and we boys regarded her as a very wonderful beast. In a few weeks she had a lot of pigs, and of all the queer, funny, animal children we had yet seen, none amused us more. They were so comic in size and shape, in their gait and gestures, their merry sham fights, and the false alarms they got up for the fun of scampering back to their mother and begging her in most persuasive little squeals to lie down and give them a drink.

After her darling short-snouted babies were about a month old, she took them out to the woods and gradually roamed farther and farther from the shanty in search of acorns and roots. One afternoon we heard a rifle-shot, a very noticeable thing, as we had no near neighbors, as yet. We thought it must have been fired by an Indian on the trail that followed the right bank of the Fox River between

Portage and Packwaukee Lake and passed our shanty at a distance of about three quarters of a mile. Just a few minutes after that shot was heard, along came the poor mother rushing up to the shanty for protection, with her pigs, all out of breath and terror-stricken. One of them was missing, and we supposed of course that an Indian had shot it for food. Next day, I discovered a blood-puddle where the Indian trail crossed the outlet of our lake. One of father's hired men told us that the Indians thought nothing of levying this sort of black-mail whenever they were hungry. The solemn awe and fear in the eyes of that old mother and those little pigs I never can forget; it was as unmistakable and deadly a fear as I ever saw expressed by any human eye, and corroborates in no uncertain way the oneness of all of us.

CHAPTER III

LIFE ON A WISCONSIN FARM

Coming direct from school in Scotland while we were still hopefully ignorant and far from tame, — notwithstanding the unnatural profusion of teaching and thrashing lavished upon us, — getting acquainted with the animals about us was a never-failing source of wonder and delight. At first my father, like nearly all the backwoods settlers, bought a yoke of oxen to do the farm work, and as field after field was cleared, the number was gradually increased until we had five yoke. These wise, patient, plodding animals did all the ploughing, logging, hauling, and hard work of every sort for the first four or five years, and, never having seen oxen before, we looked at them with the same eager freshness of conception as we did at the wild animals. We worked with them, sympathized with them in their rest and toil and play, and thus learned to know them far better than we should had we been only trained scientific naturalists. We soon learned that each ox and cow and calf had individual character. Old white-faced Buck, one of the second yoke of oxen we owned, was

a notably sagacious fellow. He seemed to reason sometimes almost like ourselves. In the fall we fed the cattle lots of pumpkins and had to split them open so that mouthfuls could be readily broken off. But Buck never waited for us to come to his help. The others, when they were hungry and impatient, tried to break through the hard rind with their teeth, but seldom with success if the pumpkin was full grown. Buck never wasted time in this mumbling, slavering way, but crushed them with his head. He went to the pile, picked out a good one, like a boy choosing an orange or apple, rolled it down on to the open ground, deliberately kneeled in front of it, placed his broad, flat brow on top of it, brought his weight hard down and crushed it, then quietly arose and went on with his meal in comfort. Some would call this "instinct," as if so-called "blind instinct" must necessarily make an ox stand on its head to break pumpkins when its teeth got sore, or when nobody came with an axe to split them. Another fine ox showed his skill when hungry by opening all the fences that stood in his way to the corn-fields.

The humanity we found in them came partly through the expression of their eyes when tired, their tones of voice when hungry and calling for food, their patient plodding and

pulling in hot weather, their long-drawn-out sighing breath when exhausted and suffering like ourselves, and their enjoyment of rest with the same grateful looks as ours. We recognized their kinship also by their yawning like ourselves when sleepy and evidently enjoying the same peculiar pleasure at the roots of their jaws; by the way they stretched themselves in the morning after a good rest; by learning languages, — Scotch, English, Irish, French, Dutch, — a smattering of each as required in the faithful service they so willingly, wisely rendered; by their intelligent, alert curiosity, manifested in listening to strange sounds; their love of play; the attachments they made; and their mourning, long continued, when a companion was killed.

When we went to Portage, our nearest town, about ten or twelve miles from the farm, it would oftentimes be late before we got back, and in the summer-time, in sultry, rainy weather, the clouds were full of sheet lightning which every minute or two would suddenly illumine the landscape, revealing all its features, the hills and valleys, meadows and trees, about as fully and clearly as the noonday sunshine; then as suddenly the glorious light would be quenched, making the darkness seem denser than before. On such nights the cattle had to

find the way home without any help from us, but they never got off the track, for they followed it by scent like dogs. Once, father, returning late from Portage or Kingston, compelled Tom and Jerry, our first oxen, to leave the dim track, imagining they must be going wrong. At last they stopped and refused to go farther. Then father unhitched them from the wagon, took hold of Tom's tail, and was thus led straight to the shanty. Next morning he set out to seek his wagon and found it on the brow of a steep hill above an impassable swamp. We learned less from the cows, because we did not enter so far into their lives, working with them, suffering heat and cold, hunger and thirst, and almost deadly weariness with them; but none with natural charity could fail to sympathize with them in their love for their calves, and to feel that it in no way differed from the divine mother-love of a woman in thoughtful, self-sacrificing care; for they would brave every danger, giving their lives for their offspring. Nor could we fail to sympathize with their awkward, blunt-nosed baby calves, with such beautiful, wondering eyes looking out on the world and slowly getting acquainted with things, all so strange to them, and awkwardly learning to use their legs, and play and fight.

Before leaving Scotland, father promised us

a pony to ride when we got to America, and we saw to it that this promise was not forgotten. Only a week or two after our arrival in the woods he bought us a little Indian pony for thirteen dollars from a store-keeper in Kingston who had obtained him from a Winnebago or Menominee Indian in trade for goods. He was a stout handsome bay with long black mane and tail, and, though he was only two years old, the Indians had already taught him to carry all sorts of burdens, to stand without being tied, to go anywhere over all sorts of ground fast or slow, and to jump and swim and fear nothing, — a truly wonderful creature, strangely different from shy, skittish, nervous, superstitious civilized beasts. We turned him loose, and, strange to say, he never ran away from us or refused to be caught, but behaved as if he had known Scotch boys all his life; probably because we were about as wild as young Indians.

One day when father happened to have a little leisure, he said, "Noo, bairns, rin doon the meadow and get your powny and learn to ride him." So we led him out to a smooth place near an Indian mound back of the shanty, where father directed us to begin. I mounted for the first memorable lesson, crossed the mound, and set out at a slow

walk along the wagon-track made in hauling lumber; then father shouted: "Whup him up, John, whup him up! Make him gallop; gallopin' is easier and better than walkin' or trottin'." Jack was willing, and away he sped at a good fast gallop. I managed to keep my balance fairly well by holding fast to the mane, but could not keep from bumping up and down, for I was plump and elastic and so was Jack; therefore about half of the time I was in the air.

After a quarter of a mile or so of this curious transportation, I cried, "Whoa, Jack!" The wonderful creature seemed to understand Scotch, for he stopped so suddenly I flew over his head, but he stood perfectly still as if that flying method of dismounting were the regular way. Jumping on again, I bumped and bobbed back along the grassy, flowery track, over the Indian mound, cried, "Whoa, Jack!" flew over his head, and alighted in father's arms as gracefully as if it were all intended for circus work.

After going over the course five or six times in the same free, picturesque style, I gave place to brother David, whose performances were much like my own. In a few weeks, however, or a month, we were taking adventurous rides more than a mile long out to a big

meadow frequented by sandhill cranes, and returning safely with wonderful stories of the great long-legged birds we had seen, and how on the whole journey away and back we had fallen off only five or six times. Gradually we learned to gallop through the woods without roads of any sort, bareback and without rope or bridle, guiding only by leaning from side to side or by slight knee pressure. In this free way we used to amuse ourselves, riding at full speed across a big "kettle" that was on our farm, without holding on by either mane or tail.

These so-called "kettles" were formed by the melting of large detached blocks of ice that had been buried in moraine material thousands of years ago when the ice-sheet that covered all this region was receding. As the buried ice melted, of course the moraine material above and about it fell in, forming hopper-shaped hollows, while the grass growing on their sides and around them prevented the rain and wind from filling them up. The one we performed in was perhaps seventy or eighty feet wide and twenty or thirty feet deep; and without a saddle or hold of any kind it was not easy to keep from slipping over Jack's head in diving into it, or over his tail climbing out. This was fine sport on the long summer Sundays when we were able to steal away before

meeting-time without being seen. We got very warm and red at it, and oftentimes poor Jack, dripping with sweat like his riders, seemed to have been boiled in that kettle.

In Scotland we had often been admonished to be bold, and this advice we passed on to Jack, who had already got many a wild lesson from Indian boys. Once, when teaching him to jump muddy streams, I made him try the creek in our meadow at a place where it is about twelve feet wide. He jumped bravely enough, but came down with a grand splash hardly more than halfway over. The water was only about a foot in depth, but the black vegetable mud half afloat was unfathomable. I managed to wallow ashore, but poor Jack sank deeper and deeper until only his head was visible in the black abyss, and his Indian fortitude was desperately tried. His foundering so suddenly in the treacherous gulf recalled the story of the Abbot of Aberbrothok's bell, which went down with a gurgling sound while bubbles rose and burst around. I had to go to father for help. He tied a long hemp rope brought from Scotland around Jack's neck, and Tom and Jerry seemed to have all they could do to pull him out. After which I got a solemn scolding for asking the "puir beast to jump intil sic a saft bottomless place."

We moved into our frame house in the fall, when mother with the rest of the family arrived from Scotland, and, when the winter snow began to fly, the bur-oak shanty was made into a stable for Jack. Father told us that good meadow hay was all he required, but we fed him corn, lots of it, and he grew very frisky and fat. About the middle of winter his long hair was full of dust and, as we thought, required washing. So, without taking the frosty weather into account, we gave him a thorough soap and water scouring, and as we failed to get him rubbed dry, a row of icicles formed under his belly. Father happened to see him in this condition and angrily asked what we had been about. We said Jack was dirty and we had washed him to make him healthy. He told us we ought to be ashamed of ourselves, "soaking the puir beast in cauld water at this time o' year"; that when we wanted to clean him we should have sense enough to use the brush and curry-comb.

In summer Dave or I had to ride after the cows every evening about sundown, and Jack got so accustomed to bringing in the drove that when we happened to be a few minutes late he used to go off alone at the regular time and bring them home at a gallop. It used to make father very angry to see Jack chasing the

OUR FIRST WISCONSIN HOME

On the hill near the shanty built in the summer of 1849

cows like a shepherd dog, running from one to the other and giving each a bite on the rump to keep them on the run, flying before him as if pursued by wolves. Father would declare at times that the wicked beast had the deevil in him and would be the death of the cattle. The corral and barn were just at the foot of a hill, and he made a great display of the drove on the home stretch as they walloped down that hill with their tails on end.

One evening when the pell-mell Wild West show was at its wildest, it made father so extravagantly mad that he ordered me to "Shoot Jack!" I went to the house and brought the gun, suffering most horrible mental anguish, such as I suppose unhappy Abraham felt when commanded to slay Isaac. Jack's life was spared, however, though I can't tell what finally became of him. I wish I could. After father bought a span of work horses he was sold to a man who said he was going to ride him across the plains to California. We had him, I think, some five or six years. He was the stoutest, gentlest, bravest little horse I ever saw. He never seemed tired, could canter all day with a man about as heavy as himself on his back, and feared nothing. Once fifty or sixty pounds of beef that was tied on his back slid over his shoulders along his

neck and weighed down his head to the ground, fairly anchoring him; but he stood patient and still for half an hour or so without making the slightest struggle to free himself, while I was away getting help to untie the pack-rope and set the load back in its place.

As I was the eldest boy I had the care of our first span of work horses. Their names were Nob and Nell. Nob was very intelligent, and even affectionate, and could learn almost anything. Nell was entirely different; balky and stubborn, though we managed to teach her a good many circus tricks; but she never seemed to like to play with us in anything like an affectionate way as Nob did. We turned them out one day into the pasture, and an Indian, hiding in the brush that had sprung up after the grass fires had been kept out, managed to catch Nob, tied a rope to her jaw for a bridle, rode her to Green Lake, about thirty or forty miles away, and tried to sell her for fifteen dollars. All our hearts were sore, as if one of the family had been lost. We hunted everywhere and could not at first imagine what had become of her. We discovered her track where the fence was broken down, and, following it for a few miles, made sure the track was Nob's; and a neighbor told us he had seen an Indian riding fast through the woods on a horse that looked

like Nob. But we could find no farther trace of her until a month or two after she was lost, and we had given up hope of ever seeing her again. Then we learned that she had been taken from an Indian by a farmer at Green Lake because he saw that she had been shod and had worked in harness. So when the Indian tried to sell her the farmer said: "You are a thief. That is a white man's horse. You stole her."

"No," said the Indian, "I brought her from Prairie du Chien and she has always been mine."

The man, pointing to her feet and the marks of the harness, said: "You are lying. I will take that horse away from you and put her in my pasture, and if you come near it I will set the dogs on you." Then he advertised her. One of our neighbors happened to see the advertisement and brought us the glad news, and great was our rejoicing when father brought her home. That Indian must have treated her with terrible cruelty, for when I was riding her through the pasture several years afterward, looking for another horse that we wanted to catch, as we approached the place where she had been captured she stood stock still gazing through the bushes, fearing the Indian might still be hiding there ready to spring; and she was so excited that she trembled, and her

heartbeats were so loud that I could hear them distinctly as I sat on her back, *boomp, boomp, boomp,* like the drumming of a partridge. So vividly had she remembered her terrible experiences.

She was a great pet and favorite with the whole family, quickly learned playful tricks, came running when we called, seemed to know everything we said to her, and had the utmost confidence in our friendly kindness.

We used to cut and shock and husk the Indian corn in the fall, until a keen Yankee stopped overnight at our house and among other labor-saving notions convinced father that it was better to let it stand, and husk it at his leisure during the winter, then turn in the cattle to eat the leaves and trample down the stalks, so that they could be ploughed under in the spring. In this winter method each of us took two rows and husked into baskets, and emptied the corn on the ground in piles of fifteen to twenty basketfuls, then loaded it into the wagon to be hauled to the crib. This was cold, painful work, the temperature being oftentimes far below zero and the ground covered with dry, frosty snow, giving rise to miserable crops of chilblains and frosted fingers — a sad change from the merry Indian-summer husking, when the big yellow pumpkins covered

the cleared fields; — golden corn, golden pumpkins, gathered in the hazy golden weather. Sad change, indeed, but we occasionally got some fun out of the nipping, shivery work from hungry prairie chickens, and squirrels and mice that came about us.

The piles of corn were often left in the field several days, and while loading them into the wagon we usually found field mice in them, — big, blunt-nosed, strong-scented fellows that we were taught to kill just because they nibbled a few grains of corn. I used to hold one while it was still warm, up to Nob's nose for the fun of seeing her make faces and snort at the smell of it; and I would say: "Here, Nob," as if offering her a lump of sugar. One day I offered her an extra fine, fat, plump specimen, something like a little woodchuck, or muskrat, and to my astonishment, after smelling it curiously and doubtfully, as if wondering what the gift might be, and rubbing it back and forth in the palm of my hand with her upper lip, she deliberately took it into her mouth, crunched and munched and chewed it fine and swallowed it, bones, teeth, head, tail, everything. Not a single hair of that mouse was wasted. When she was chewing it she nodded and grunted, as though critically tasting and relishing it.

My father was a steadfast enthusiast on reli-

gious matters, and, of course, attended almost every sort of church-meeting, especially revival meetings. They were occasionally held in summer, but mostly in winter when the sleighing was good and plenty of time available. One hot summer day father drove Nob to Portage and back, twenty-four miles over a sandy road. It was a hot, hard, sultry day's work, and she had evidently been over-driven in order to get home in time for one of these meetings. I shall never forget how tired and wilted she looked that evening when I unhitched her; how she drooped in her stall, too tired to eat or even to lie down. Next morning it was plain that her lungs were inflamed; all the dreadful symptoms were just the same as my own when I had pneumonia. Father sent for a Methodist minister, a very energetic, resourceful man, who was a blacksmith, farmer, butcher, and horse-doctor as well as minister; but all his gifts and skill were of no avail. Nob was doomed. We bathed her head and tried to get her to eat something, but she could n't eat, and in about a couple of weeks we turned her loose to let her come around the house and see us in the weary suffering and loneliness of the shadow of death. She tried to follow us children, so long her friends and workmates and playmates. It was awfully touching. She had

several hemorrhages, and in the forenoon of her last day, after she had had one of her dreadful spells of bleeding and gasping for breath, she came to me trembling, with beseeching, heartbreaking looks, and after I had bathed her head and tried to soothe and pet her, she lay down and gasped and died. All the family gathered about her, weeping, with aching hearts. Then dust to dust.

She was the most faithful, intelligent, playful, affectionate, human-like horse I ever knew, and she won all our hearts. Of the many advantages of farm life for boys one of the greatest is the gaining a real knowledge of animals as fellow-mortals, learning to respect them and love them, and even to win some of their love. Thus godlike sympathy grows and thrives and spreads far beyond the teachings of churches and schools, where too often the mean, blinding, loveless doctrine is taught that animals have neither mind nor soul, have no rights that we are bound to respect, and were made only for man, to be petted, spoiled, slaughtered, or enslaved.

At first we were afraid of snakes, but soon learned that most of them were harmless. The only venomous species seen on our farm were the rattlesnake and the copperhead, one of each. David saw the rattler, and we both saw

the copperhead. One day, when my brother came in from his work, he reported that he had seen a snake that made a queer buzzy noise with its tail. This was the only rattlesnake seen on our farm, though we heard of them being common on limestone hills eight or ten miles distant. We discovered the copperhead when we were ploughing, and we saw and felt at the first long, fixed, half-charmed, admiring stare at him that he was an awfully dangerous fellow. Every fiber of his strong, lithe, quivering body, his burnished copper-colored head, and above all his fierce, able eyes, seemed to be overflowing full of deadly power, and bade us beware. And yet it is only fair to say that this terrible, beautiful reptile showed no disposition to hurt us until we threw clods at him and tried to head him off from a log fence into which he was trying to escape. We were barefooted and of course afraid to let him get very near, while we vainly battered him with the loose sandy clods of the freshly ploughed field to hold him back until we could get a stick. Looking us in the eyes after a moment's pause, he probably saw we were afraid, and he came right straight at us, snapping and looking terrible, drove us out of his way, and won his fight.

Out on the open sandy hills there were a good many thick burly blow snakes, the kind

that puff themselves up and hiss. Our Yankee declared that their breath was very poisonous and that we must not go near them. A handsome ringed species common in damp, shady places was, he told us, the most wonderful of all the snakes, for if chopped into pieces, however small, the fragments would wriggle themselves together again, and the restored snake would go on about its business as if nothing had happened. The commonest kinds were the striped slender species of the meadows and streams, good swimmers, that lived mostly on frogs.

Once I observed one of the larger ones, about two feet long, pursuing a frog in our meadow, and it was wonderful to see how fast the legless, footless, wingless, finless hunter could run. The frog, of course, knew its enemy and was making desperate efforts to escape to the water and hide in the marsh mud. He was a fine, sleek yellow muscular fellow and was springing over the tall grass in wide-arching jumps. The green-striped snake, gliding swiftly and steadily, was keeping the frog in sight and, had I not interfered, would probably have tired out the poor jumper. Then, perhaps, while digesting and enjoying his meal, the happy snake would himself be swallowed frog and all by a hawk. Again, to our astonishment,

the small specimens were attacked by our hens. They pursued and pecked away at them until they killed and devoured them, oftentimes quarreling over the division of the spoil, though it was not easily divided.

We watched the habits of the swift-darting dragonflies, wild bees, butterflies, wasps, beetles, etc., and soon learned to discriminate between those that might be safely handled and the pinching or stinging species. But of all our wild neighbors the mosquitoes were the first with which we became very intimately acquainted.

The beautiful meadow lying warm in the spring sunshine, outspread between our lily-rimmed lake and the hill-slope that our shanty stood on, sent forth thirsty swarms of the little gray, speckledy, singing, stinging pests; and how tellingly they introduced themselves! Of little avail were the smudges that we made on muggy evenings to drive them away; and amid the many lessons which they insisted upon teaching us we wondered more and more at the extent of their knowledge, especially that in their tiny, flimsy bodies room could be found for such cunning palates. They would drink their fill from brown, smoky Indians, or from old white folk flavored with tobacco and whiskey, when no better could be had. But the

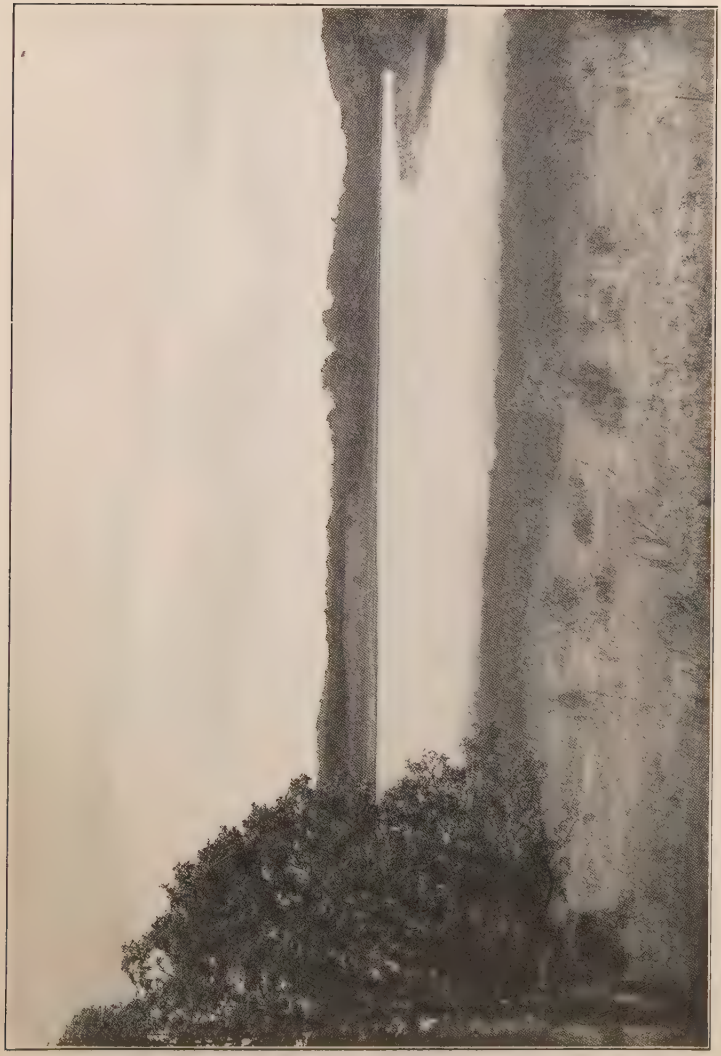
surpassing fineness of their taste was best manifested by their enthusiastic appreciation of boys full of lively red blood, and of girls in full bloom fresh from cool Scotland or England. On these it was pleasant to witness their enjoyment as they feasted. Indians, we were told, believed that if they were brave fighters they would go after death to a happy country abounding in game, where there were no mosquitoes and no cowards. For cowards were driven away by themselves to a miserable country where there was no game fit to eat, and where the sky was always dark with huge gnats and mosquitoes as big as pigeons.

We were great admirers of the little black water-bugs. Their whole lives seemed to be play, skimming, swimming, swirling, and waltzing together in little groups on the edge of the lake and in the meadow springs, dancing to music we never could hear. The long-legged skaters, too, seemed wonderful fellows, shuffling about on top of the water, with air-bubbles like little bladders tangled under their hairy feet; and we often wished that we also might be shod in the same way to enable us to skate on the lake in summer as well as in icy winter. Not less wonderful were the boatmen, swimming on their backs, pulling themselves along with a pair of oar-like legs.

Great was the delight of brothers David and Daniel and myself when father gave us a few pine boards for a boat, and it was a memorable day when we got that boat built and launched into the lake. Never shall I forget our first sail over the gradually deepening water, the sunbeams pouring through it revealing the strange plants covering the bottom, and the fishes coming about us, staring and wondering as if the boat were a monstrous strange fish.

The water was so clear that it was almost invisible, and when we floated slowly out over the plants and fishes, we seemed to be miraculously sustained in the air while silently exploring a veritable fairyland.

We always had to work hard, but if we worked still harder we were occasionally allowed a little spell in the long summer evenings about sundown to fish, and on Sundays an hour or two to sail quietly without fishing-rod or gun when the lake was calm. Therefore we gradually learned something about its inhabitants, — pickerel, sunfish, black bass, perch, shiners, pumpkin-seeds, ducks, loons, turtles, muskrats, etc. We saw the sunfishes making their nests in little openings in the rushes where the water was only a few feet deep, ploughing up and shoving away the soft gray mud with their noses, like pigs, forming round bowls five or six



inches in depth and about two feet in diameter, in which their eggs were deposited. And with what beautiful, unweariable devotion they watched and hovered over them and chased away prowling spawn-eating enemies that ventured within a rod or two of the precious nest!

The pickerel is a savage fish endowed with marvelous strength and speed. It lies in wait for its prey on the bottom, perfectly motionless like a waterlogged stick, watching everything that moves, with fierce, hungry eyes. Oftentimes when we were fishing for some other kinds over the edge of the boat, a pickerel that we had not noticed would come like a bolt of lightning and seize the fish we had caught before we could get it into the boat. The very first pickerel that I ever caught jumped into the air to seize a small fish dangling on my line, and, missing its aim, fell plump into the boat as if it had dropped from the sky.

Some of our neighbors fished for pickerel through the ice in midwinter. They usually drove a wagon out on the lake, set a large number of lines baited with live minnows, hung a loop of the lines over a small bush planted at the side of each hole, and watched to see the loops pulled off when a fish had taken the bait. Large quantities of pickerel were often caught in this cruel way.

Our beautiful lake, named Fountain Lake by father, but Muir's Lake by the neighbors, is one of the many small glacier lakes that adorn the Wisconsin landscapes. It is fed by twenty or thirty meadow springs, is about half a mile long, half as wide, and surrounded by low finely-modeled hills dotted with oak and hickory, and meadows full of grasses and sedges and many beautiful orchids and ferns. First there is a zone of green, shining rushes, and just beyond the rushes a zone of white and orange water-lilies fifty or sixty feet wide forming a magnificent border. On bright days, when the lake was rippled by a breeze, the lilies and sun-spangles danced together in radiant beauty, and it became difficult to discriminate between them.

On Sundays, after or before chores and sermons and Bible-lessons, we drifted about on the lake for hours, especially in lily time, getting finest lessons and sermons from the water and flowers, ducks, fishes, and muskrats. In particular we took Christ's advice and devoutly "considered the lilies" — how they grow up in beauty out of gray lime mud, and ride gloriously among the breezy sun-spangles. On our way home we gathered grand bouquets of them to be kept fresh all the week. No flower was hailed with greater wonder and

admiration by the European settlers in general — Scotch, English, and Irish — than this white water-lily (*Nymphæa odorata*). It is a magnificent plant, queen of the inland waters, pure white, three or four inches in diameter, the most beautiful, sumptuous, and deliciously fragrant of all our Wisconsin flowers. No lily garden in civilization we had ever seen could compare with our lake garden.

The next most admirable flower in the estimation of settlers in this part of the new world was the pasque-flower or wind-flower (*Anemone Patens* var. *Nuttalliana*). It is the very first to appear in the spring, covering the cold gray-black ground with cheery blossoms. Before the axe or plough had touched the "oak openings" of Wisconsin, they were swept by running fires almost every autumn after the grass became dry. If from any cause, such as early snowstorms or late rains, they happened to escape the autumn fire besom, they were likely to be burned in the spring after the snow melted. But whether burned in the spring or fall, ashes and bits of charred twigs and grass stems made the whole country look dismal. Then, before a single grass-blade had sprouted, a hopeful multitude of large hairy, silky buds about as thick as one's thumb came to light, pushing up through the black and gray ashes

and cinders, and before these buds were fairly free from the ground they opened wide and displayed purple blossoms about two inches in diameter, giving beauty for ashes in glorious abundance. Instead of remaining in the ground waiting for warm weather and companions, this admirable plant seemed to be in haste to rise and cheer the desolate landscape. Then at its leisure, after other plants had come to its help, it spread its leaves and grew up to a height of about two or three feet. The spreading leaves formed a whorl on the ground, and another about the middle of the stem as an involucre, and on the top of the stem the silky, hairy long-tailed seeds formed a head like a second flower. A little church was established among the earlier settlers and the meetings at first were held in our house. After working hard all the week it was difficult for boys to sit still through long sermons without falling asleep, especially in warm weather. In this drowsy trouble the charming anemone came to our help. A pocketful of the pungent seeds industriously nibbled while the discourses were at their dullest kept us awake and filled our minds with flowers.

The next great flower wonders on which we lavished admiration, not only for beauty of color and size, but for their curious shapes, were

the cypripediums, called "lady's-slippers" or "Indian moccasins." They were so different from the familiar flowers of old Scotland. Several species grew in our meadow and on shady hillsides — yellow, rose-colored, and some nearly white, an inch or more in diameter, and shaped exactly like Indian moccasins. They caught the eye of all the European settlers and made them gaze and wonder like children. And so did calopogon, pogonia, spiranthes, and many other fine plant people that lived in our meadow. The beautiful Turk's-turban (*Lilium superbum*) growing on stream-banks was rare in our neighborhood, but the orange lily grew in abundance on dry ground beneath the bur-oaks and often brought Aunt Ray's lily-bed in Scotland to mind. The butterfly-weed, with its brilliant scarlet flowers, attracted flocks of butterflies and made fine masses of color. With autumn came a glorious abundance and variety of asters, those beautiful plant stars, together with goldenrods, sunflowers, daisies, and liatris of different species, while around the shady margin of the meadow many ferns in beds and vaselike groups spread their beautiful fronds, especially the osmundas (*O. claytoniana*, *regalis*, and *cinnamomea*) and the sensitive and ostrich ferns.

Early in summer we feasted on strawberries,

that grew in rich beds beneath the meadow grasses and sedges as well as in the dry sunny woods. And in different bogs and marshes, and around their borders on our own farm and along the Fox River, we found dewberries and cranberries, and a glorious profusion of huckleberries, the fountain-heads of pies of wondrous taste and size, colored in the heart like sunsets. Nor were we slow to discover the value of the hickory trees yielding both sugar and nuts. We carefully counted the different kinds on our farm, and every morning when we could steal a few minutes before breakfast after doing the chores, we visited the trees that had been wounded by the axe, to scrape off and enjoy the thick white delicious syrup that exuded from them, and gathered the nuts as they fell in the mellow Indian summer, making haste to get a fair share with the sapsuckers and squirrels. The hickory makes fine masses of color in the fall, every leaf a flower, but it was the sweet sap and sweet nuts that first interested us. No harvest in the Wisconsin woods was ever gathered with more pleasure and care. Also, to our delight, we found plenty of hazelnuts, and in a few places abundance of wild apples. They were desperately sour, and we used to fill our pockets with them and dare each other to eat one without making a face — no easy feat.

One hot summer day father told us that we ought to learn to swim. This was one of the most interesting suggestions he had ever offered, but precious little time was allowed for trips to the lake, and he seldom tried to show us how. "Go to the frogs," he said, "and they will give you all the lessons you need. Watch their arms and legs and see how smoothly they kick themselves along and dive and come up. When you want to dive, keep your arms by your side or over your head, and kick, and when you want to come up, let your legs drag and paddle with your hands."

We found a little basin among the rushes at the south end of the lake, about waist-deep and a rod or two wide, shaped like a sunfish's nest. Here we kicked and plashed for many a lesson, faithfully trying to imitate frogs; but the smooth, comfortable sliding gait of our amphibious teachers seemed hopelessly hard to learn. When we tried to kick frog-fashion, down went our heads as if weighted with lead the moment our feet left the ground. One day it occurred to me to hold my breath as long as I could and let my head sink as far as it liked without paying any attention to it, and try to swim under the water instead of on the surface. This method was a great success, for at the very first trial I managed to cross the basin without

touching bottom, and soon learned the use of my limbs. Then, of course, swimming with my head above water soon became so easy that it seemed perfectly natural. David tried the plan with the same success. Then we began to count the number of times that we could swim around the basin without stopping to rest, and after twenty or thirty rounds failed to tire us, we proudly thought that a little more practice would make us about as amphibious as frogs.

On the fourth of July of this swimming year one of the Lawson boys came to visit us, and we went down to the lake to spend the great warm day with the fishes and ducks and turtles. After gliding about on the smooth mirror water, telling stories and enjoying the company of the happy creatures about us, we rowed to our bathing-pool, and David and I went in for a swim, while our companion fished from the boat a little way out beyond the rushes. After a few turns in the pool, it occurred to me that it was now about time to try deep water. Swimming through the thick growth of rushes and lilies was somewhat dangerous, especially for a beginner, because one's arms and legs might be entangled among the long, limber stems; nevertheless I ventured and struck out boldly enough for the boat, where the water

was twenty or thirty feet deep. When I reached the end of the little skiff I raised my right hand to take hold of it to surprise Lawson, whose back was toward me and who was not aware of my approach; but I failed to reach high enough, and, of course, the weight of my arm and the stroke against the overleaning stern of the boat shoved me down and I sank, struggling, frightened and confused. As soon as my feet touched the bottom, I slowly rose to the surface, but before I could get breath enough to call for help, sank back again and lost all control of myself. After sinking and rising I don't know how many times, some water got into my lungs and I began to drown. Then suddenly my mind seemed to clear. I remembered that I could swim under water, and, making a desperate struggle toward the shore, I reached a point where with my toes on the bottom I got my mouth above the surface, gasped for help, and was pulled into the boat.

This humiliating accident spoiled the day, and we all agreed to keep it a profound secret. My sister Sarah had heard my cry for help, and on our arrival at the house inquired what had happened. "Were you drowning, John? I heard you cry you couldna get oot." Lawson made haste to reply, "Oh, no! He was juist haverin" [making fun].

I was very much ashamed of myself, and at night, after calmly reviewing the affair, concluded that there had been no reasonable cause for the accident, and that I ought to punish myself for so nearly losing my life from unmanly fear. Accordingly at the very first opportunity, I stole away to the lake by myself, got into my boat, and instead of going back to the old swimming-bowl for further practice, or to try to do sanely and well what I had so ignominiously failed to do in my first adventure, that is, to swim out through the rushes and lilies, I rowed directly out to the middle of the lake, stripped, stood up on the seat in the stern, and with grim deliberation took a header and dove straight down thirty or forty feet, turned easily, and, letting my feet drag, paddled straight to the surface with my hands as father had at first directed me to do. I then swam round the boat, glorying in my suddenly acquired confidence and victory over myself, climbed into it, and dived again, with the same triumphant success. I think I went down four or five times, and each time as I made the dive-spring shouted aloud, "Take that!" feeling that I was getting most gloriously even with myself.

Never again from that day to this have I lost control of myself in water. If suddenly thrown overboard at sea in the dark, or even

while asleep, I think I would immediately right myself in a way some would call "instinct," rise among the waves, catch my breath, and try to plan what would better be done. Never was victory over self more complete. I have been a good swimmer ever since. At a slow gait I think I could swim all day in smooth water moderate in temperature. When I was a student at Madison, I used to go on long swimming-journeys, called exploring expeditions, along the south shore of Lake Mendota, on Saturdays, sometimes alone, sometimes with another amphibious explorer by the name of Fuller.

My adventures in Fountain Lake call to mind the story of a boy who in climbing a tree to rob a crow's nest fell and broke his leg, but as soon as it healed compelled himself to climb to the top of the tree he had fallen from.

Like Scotch children in general we were taught grim self-denial, in season and out of season, to mortify the flesh, keep our bodies in subjection to Bible laws, and mercilessly punish ourselves for every fault imagined or committed. A little boy, while helping his sister to drive home the cows, happened to use a forbidden word. "I'll have to tell fayther on ye," said the horrified sister. "I'll tell him that ye said a bad word." "Weel," said the boy, by

way of excuse, "I couldna help the word comin' into me, and it's na waur to speak it oot than to let it rin through ye."

A Scotch fiddler playing at a wedding drank so much whiskey that on the way home he fell by the roadside. In the morning he was ashamed and angry and determined to punish himself. Making haste to the house of a friend, a gamekeeper, he called him out, and requested the loan of a gun. The alarmed gamekeeper, not liking the fiddler's looks and voice, anxiously inquired what he was going to do with it. "Surely," said he, "you're no gan to shoot yoursel." "No-o," with characteristic candor replied the penitent fiddler, "I dinna think that I'll juist exactly kill mysel, but I'm gaun to tak a dander doon the burn (brook) wi' the gun and gie mysel a deevil o' a fleg" (fright).

One calm summer evening a red-headed woodpecker was drowned in our lake. The accident happened at the south end, opposite our memorable swimming-hole, a few rods from the place where I came so near being drowned years before. I had returned to the old home during a summer vacation of the State University, and, having made a beginning in botany, I was, of course, full of enthusiasm and ran eagerly to my beloved pogonia, calopogon, and cypripedium gardens, osmunda ferneries, and

the lake lilies and pitcher-plants. A little before sundown the day-breeze died away, and the lake, reflecting the wooded hills like a mirror, was dimpled and dotted and streaked here and there where fishes and turtles were poking out their heads and muskrats were sculling themselves along with their flat tails making glittering tracks. After lingering awhile, dreamily recalling the old, hard, half-happy days, and watching my favorite red-headed woodpeckers pursuing moths like regular flycatchers, I swam out through the rushes and up the middle of the lake to the north end and back, gliding slowly, looking about me, enjoying the scenery as I would in a saunter along the shore, and studying the habits of the animals as they were explained and recorded on the smooth glassy water.

On the way back, when I was within a hundred rods or so of the end of my voyage, I noticed a peculiar plashing disturbance that could not, I thought, be made by a jumping fish or any other inhabitant of the lake; for instead of low regular out-circling ripples such as are made by the popping up of a head, or like those raised by the quick splash of a leaping fish, or diving loon or muskrat, a continuous struggle was kept up for several minutes ere the outspreading, interfering ring-waves began

to die away. Swimming hastily to the spot to try to discover what had happened, I found one of my woodpeckers floating motionless with outspread wings. All was over. Had I been a minute or two earlier, I might have saved him. He had glanced on the water I suppose in pursuit of a moth, was unable to rise from it, and died struggling, as I nearly did at this same spot. Like me he seemed to have lost his mind in blind confusion and fear. The water was warm, and had he kept still with his head a little above the surface, he would sooner or later have been wafted ashore. The best aimed flights of birds and man "gang aft agley," but this was the first case I had witnessed of a bird losing its life by drowning.

Doubtless accidents to animals are far more common than is generally known. I have seen quails killed by flying against our house when suddenly startled. Some birds get entangled in hairs of their own nests and die. Once I found a poor snipe in our meadow that was unable to fly on account of difficult egg-birth. Pitying the poor mother, I picked her up out of the grass and helped her as gently as I could, and as soon as the egg was born she flew gladly away. Oftentimes I have thought it strange that one could walk through the woods and mountains and plains for years without see-

ing a single blood-spot. Most wild animals get into the world and out of it without being noticed. Nevertheless we at last sadly learn that they are all subject to the vicissitudes of fortune like ourselves. Many birds lose their lives in storms. I remember a particularly severe Wisconsin winter, when the temperature was many degrees below zero and the snow was deep, preventing the quail, which feed on the ground, from getting anything like enough of food, as was pitifully shown by a flock I found on our farm frozen solid in a thicket of oak sprouts. They were in a circle about a foot wide, with their heads outward, packed close together for warmth. Yet all had died without a struggle, perhaps more from starvation than frost. Many small birds lose their lives in the storms of early spring, or even summer. One mild spring morning I picked up more than a score out of the grass and flowers, most of them darling singers that had perished in a sudden storm of sleety rain and hail.

In a hollow at the foot of an oak tree that I had chopped down one cold winter day, I found a poor ground squirrel frozen solid in its snug grassy nest, in the middle of a store of nearly a peck of wheat it had carefully gathered. I carried it home and gradually thawed and warmed it in the kitchen, hoping it would come

to life like a pickerel I caught in our lake through a hole in the ice, which, after being frozen as hard as a bone and thawed at the fireside, squirmed itself out of the grasp of the cook when she began to scrape it, bounced off the table, and danced about on the floor, making wonderful springy jumps as if trying to find its way back home to the lake. But for the poor spermophile nothing I could do in the way of revival was of any avail. Its life had passed away without the slightest struggle, as it lay asleep curled up like a ball, with its tail wrapped about it.

CHAPTER IV

A PARADISE OF BIRDS

The Wisconsin oak openings were a summer paradise for song birds, and a fine place to get acquainted with them; for the trees stood wide apart, allowing one to see the happy home-seekers as they arrived in the spring, their mating, nest-building, the brooding and feeding of the young, and, after they were full-fledged and strong, to see all the families of the neighborhood gathering and getting ready to leave in the fall. Excepting the geese and ducks and pigeons nearly all our summer birds arrived singly or in small draggled flocks, but when frost and falling leaves brought their winter homes to mind they assembled in large flocks on dead or leafless trees by the side of a meadow or field, perhaps to get acquainted and talk the thing over. Some species held regular daily meetings for several weeks before finally setting forth on their long southern journeys. Strange to say, we never saw them start. Some morning we would find them gone. Doubtless they migrated in the night time. Comparatively few species remained all winter, the nuthatch, chickadee, owl, prairie chicken, quail, and a

few stragglers from the main flocks of ducks, jays, hawks, and bluebirds. Only after the country was settled did either jays or bluebirds winter with us.

The brave, frost-defying chickadees and nuthatches stayed all the year wholly independent of farms and man's food and affairs.

With the first hints of spring came the brave little bluebirds, darling singers as blue as the best sky, and of course we all loved them. Their rich, crispy warbling is perfectly delightful, soothing and cheering, sweet and whisperingly low, Nature's fine love touches, every note going straight home into one's heart. And withal they are hardy and brave, fearless fighters in defense of home. When we boys approached their knot-hole nests, the bold little fellows kept scolding and diving at us and tried to strike us in the face, and oftentimes we were afraid they would prick our eyes. But the boldness of the little housekeepers only made us love them the more.

None of the bird people of Wisconsin welcomed us more heartily than the common robin. Far from showing alarm at the coming of settlers into their native woods, they reared their young around our gardens as if they liked us, and how heartily we admired the beauty and fine manners of these graceful birds and

their loud cheery song of *Fear not, fear not, cheer up, cheer up.* It was easy to love them for they reminded us of the robin redbreast of Scotland. Like the bluebirds they dared every danger in defense of home, and we often wondered that birds so gentle could be so bold and that sweet-voiced singers could so fiercely fight and scold.

Of all the great singers that sweeten Wisconsin one of the best known and best loved is the brown thrush or thrasher, strong and able without being familiar, and easily seen and heard. Rosy purple evenings after thunder-showers are the favorite song-times, when the winds have died away and the steaming ground and the leaves and flowers fill the air with fragrance. Then the male makes haste to the topmost spray of an oak tree and sings loud and clear with delightful enthusiasm until sundown, mostly I suppose for his mate sitting on the precious eggs in a brush heap. And how faithful and watchful and daring he is! Woe to the snake or squirrel that ventured to go nigh the nest! We often saw him diving on them, pecking them about the head and driving them away as bravely as the kingbird drives away hawks. Their rich and varied strains make the air fairly quiver. We boys often tried to interpret the wild ringing melody and put it into words.

After the arrival of the thrushes came the bobolinks, gushing, gurgling, inexhaustible fountains of song, pouring forth floods of sweet notes over the broad Fox River meadows in wonderful variety and volume, crowded and mixed beyond description, as they hovered on quivering wings above their hidden nests in the grass. It seemed marvelous to us that birds so moderate in size could hold so much of this wonderful song stuff. Each one of them poured forth music enough for a whole flock, singing as if its whole body, feathers and all, were made up of music, flowing, glowing, bubbling melody interpenetrated here and there with small scintillating prickles and spicules. We never became so intimately acquainted with the bobolinks as with the thrushes, for they lived far out on the broad Fox River meadows, while the thrushes sang on the tree-tops around every home. The bobolinks were among the first of our great singers to leave us in the fall, going apparently direct to the rice-fields of the Southern States, where they grew fat and were slaughtered in countless numbers for food. Sad fate for singers so purely divine.

One of the gayest of the singers is the red-wing blackbird. In the spring, when his scarlet epaulets shine brightest, and his little modest gray wife is sitting on the nest, built on rushes

in a swamp, he sits on a near-by oak and devotedly sings almost all day. His rich simple strain is *baumpalee, baumpalee,* or *bobalee* as interpreted by some. In summer, after nesting cares are over, they assemble in flocks of hundreds and thousands to feast on Indian corn when it is in the milk. Scattering over a field, each selects an ear, strips the husk down far enough to lay bare an inch or two of the end of it, enjoys an exhilarating feast, and after all are full they rise simultaneously with a quick birr of wings like an old-fashioned church congregation fluttering to their feet when the minister after giving out the hymn says, "Let the congregation arise and sing." Alighting on near-by trees, they sing with a hearty vengeance, bursting out without any puttering prelude in gloriously glad concert, hundreds or thousands of exulting voices with sweet gurgling *baumpalees* mingled with chippy vibrant and exploding globules of musical notes, making a most enthusiastic, indescribable joy-song, a combination unlike anything to be heard elsewhere in the bird kingdom; something like bagpipes, flutes, violins, pianos, and human-like voices all bursting and bubbling at once. Then suddenly some one of the joyful congregation shouts Chirr! Chirr! and all stop as if shot.

The sweet-voiced meadowlark with its placid,

simple song of *peery-eery-ódical* was another favorite, and we soon learned to admire the Baltimore oriole and its wonderful hanging nests, and the scarlet tanager glowing like fire amid the green leaves.

But no singer of them all got farther into our hearts than the little speckle-breasted song sparrow, one of the first to arrive and begin nest-building and singing. The richness, sweetness, and pathos of this small darling's song as he sat on a low bush often brought tears to our eyes.

The little cheery, modest chickadee midget, loved by every innocent boy and girl, man and woman, and by many not altogether innocent, was one of the first of the birds to attract our attention, drawing nearer and nearer to us as the winter advanced, bravely singing his faint silvery, lisping, tinkling notes ending with a bright *dee, dee, dee!* however frosty the weather.

The nuthatches, who also stayed all winter with us, were favorites with us boys. We loved to watch them as they traced the bark-furrows of the oaks and hickories head downward, deftly flicking off loose scales and splinters in search of insects, and braving the coldest weather as if their little sparks of life were as safely warm in winter as in summer, unquenchable by the severest frost. With the help of the

chickadees they made a delightful stir in the solemn winter days, and when we were out chopping we never ceased to wonder how their slender naked toes could be kept warm when our own were so painfully frosted though clad in thick socks and boots. And we wondered and admired the more when we thought of the little midgets sleeping in knot-holes when the temperature was far below zero, sometimes thirty-five degrees below, and in the morning, after a minute breakfast of a few frozen insects and hoarfrost crystals, playing and chatting in cheery tones as if food, weather, and everything was according to their own warm hearts. Our Yankee told us that the name of this darling was Devil-downhead.

Their big neighbors the owls also made good winter music, singing out loud in wild, gallant strains bespeaking brave comfort, let the frost bite as it might. The solemn hooting of the species with the widest throat seemed to us the very wildest of all the winter sounds.

Prairie chickens came strolling in family flocks about the shanty, picking seeds and grasshoppers like domestic fowls, and they became still more abundant as wheat-and-corn-fields were multiplied, but also wilder, of course, when every shotgun in the country was aimed at them. The booming of the males during the

mating-season was one of the loudest and strangest of the early spring sounds, being easily heard on calm mornings at a distance of a half or three fourths of a mile. As soon as the snow was off the ground, they assembled in flocks of a dozen or two on an open spot, usually on the side of a ploughed field, ruffled up their feathers, inflated the curious colored sacks on the sides of their necks, and strutted about with queer gestures something like turkey gobblers, uttering strange loud, rounded, drumming calls, — *boom! boom! boom!* interrupted by choking sounds. My brother Daniel caught one while she was sitting on her nest in our corn-field. The young are just like domestic chicks, run with the mother as soon as hatched, and stay with her until autumn, feeding on the ground, never taking wing unless disturbed. In winter, when full-grown, they assemble in large flocks, fly about sundown to selected roosting-places on tall trees, and to feeding-places in the morning, — unhusked corn-fields, if any are to be found in the neighborhood, or thickets of dwarf birch and willows, the buds of which furnish a considerable part of their food when snow covers the ground.

The wild rice-marshes along the Fox River and around Pucaway Lake were the summer homes of millions of ducks, and in the Indian

summer, when the rice was ripe, they grew very fat. The magnificent mallards in particular afforded our Yankee neighbors royal feasts almost without price, for often as many as a half-dozen were killed at a shot, but we seldom were allowed a single hour for hunting and so got very few. The autumn duck season was a glad time for the Indians also, for they feasted and grew fat not only on the ducks but on the wild rice, large quantities of which they gathered as they glided through the midst of the generous crop in canoes, bending down handfuls over the sides, and beating out the grain with small paddles.

The warmth of the deep spring fountains of the creek in our meadow kept it open all the year, and a few pairs of wood ducks, the most beautiful, we thought, of all the ducks, wintered in it. I well remember the first specimen I ever saw. Father shot it in the creek during a snowstorm, brought it into the house, and called us around him, saying: "Come, bairns, and admire the work of God displayed in this bonnie bird. Naebody but God could paint feathers like these. Juist look at the colors, hoo they shine, and hoo fine they overlap and blend thegether like the colors o' the rainbow." And we all agreed that never, never before had we seen so awfu' bonnie a bird. A

pair nested every year in the hollow top of an oak stump about fifteen feet high that stood on the side of the meadow, and we used to wonder how they got the fluffy young ones down from the nest and across the meadow to the lake when they were only helpless, featherless midgets; whether the mother carried them to the water on her back or in her mouth. I never saw the thing done or found anybody who had until this summer, when Mr. Holabird, a keen observer, told me that he once saw the mother carry them from the nest tree in her mouth, quickly coming and going to a near-by stream, and in a few minutes get them all together and proudly sail away.

Sometimes a flock of swans were seen passing over at a great height on their long journeys, and we admired their clear bugle notes, but they seldom visited any of the lakes in our neighborhood, so seldom that when they did it was talked of for years. One was shot by a blacksmith on a millpond with a long-range Sharp's rifle, and many of the neighbors went far to see it.

The common gray goose, Canada honker, flying in regular harrow-shaped flocks, was one of the wildest and wariest of all the large birds that enlivened the spring and autumn. They seldom ventured to alight in our small lake,

fearing, I suppose, that hunters might be concealed in the rushes; but on account of their fondness for the young leaves of winter wheat when they were a few inches high, they often alighted on our fields when passing on their way south, and occasionally even in our cornfields when a snowstorm was blowing and they were hungry and wing-weary, with nearly an inch of snow on their backs. In such times of distress we used to pity them, even while trying to get a shot at them. They were exceedingly cautious and circumspect; usually flew several times round the adjacent thickets and fences to make sure that no enemy was near before settling down, and one always stood on guard, relieved from time to time, while the flock was feeding. Therefore there was no chance to creep up on them unobserved; you had to be well hidden before the flock arrived. It was the ambition of boys to be able to shoot these wary birds. I never got but two, both of them at one so-called lucky shot. When I ran to pick them up, one of them flew away, but as the poor fellow was sorely wounded he did n't fly far. When I caught him after a short chase, he uttered a piercing cry of terror and despair, which the leader of the flock heard at a distance of about a hundred rods. They had flown off in frightened disorder, of course, but had got into

the regular harrow-shape order when the leader heard the cry, and I shall never forget how bravely he left his place at the head of the flock and hurried back screaming and struck at me in trying to save his companion. I dodged down and held my hands over my head, and thus escaped a blow of his elbows. Fortunately I had left my gun at the fence, and the life of this noble bird was spared after he had risked it in trying to save his wounded friend or neighbor or family relation. For so shy a bird boldly to attack a hunter showed wonderful sympathy and courage. This is one of my strangest hunting experiences. Never before had I regarded wild geese as dangerous, or capable of such noble self-sacrificing devotion.

The loud clear call of the handsome bob-whites was one of the pleasantest and most characteristic of our spring sounds, and we soon learned to imitate it so well that a bold cock often accepted our challenge and came flying to fight. The young run as soon as they are hatched and follow their parents until spring, roosting on the ground in a close bunch, heads out ready to scatter and fly. These fine birds were seldom seen when we first arrived in the wilderness, but when wheat-fields supplied abundance of food they multiplied very fast, although oftentimes sore pressed during

hard winters when the snow reached a depth of two or three feet, covering their food, while the mercury fell to twenty or thirty degrees below zero. Occasionally, although shy on account of being persistently hunted, under pressure of extreme hunger in the very coldest weather when the snow was deepest they ventured into barnyards and even approached the doorsteps of houses, searching for any sort of scraps and crumbs, as if piteously begging for food. One of our neighbors saw a flock come creeping up through the snow, unable to fly, hardly able to walk, and while approaching the door several of them actually fell down and died; showing that birds, usually so vigorous and apparently independent of fortune, suffer and lose their lives in extreme weather like the rest of us, frozen to death like settlers caught in blizzards. None of our neighbors perished in storms, though many had feet, ears, and fingers frost-nipped or solidly frozen.

As soon as the lake ice melted, we heard the lonely cry of the loon, one of the wildest and most striking of all the wilderness sounds, a strange, sad, mournful, unearthly cry, half laughing, half wailing. Nevertheless the great northern diver, as our species is called, is a brave, hardy, beautiful bird, able to fly under water about as well as above it, and to spear

and capture the swiftest fishes for food. Those that haunted our lake were so wary none was shot for years, though every boy hunter in the neighborhood was ambitious to get one to prove his skill. On one of our bitter cold New Year holidays I was surprised to see a loon in the small open part of the lake at the mouth of the inlet that was kept from freezing by the warm spring water. I knew that it could not fly out of so small a place, for these heavy birds have to beat the water for half a mile or so before they can get fairly on the wing. Their narrow, finlike wings are very small as compared with the weight of the body and are evidently made for flying through water as well as through the air, and it is by means of their swift flight through the water and the swiftness of the blow they strike with their long, spear-like bills that they are able to capture the fishes on which they feed. I ran down the meadow with the gun, got into my boat, and pursued that poor winter-bound straggler. Of course he dived again and again, but had to come up to breathe, and I at length got a quick shot at his head and slightly wounded or stunned him, caught him, and ran proudly back to the house with my prize. I carried him in my arms; he did n't struggle to get away or offer to strike me, and when I put him on the floor in front of the

kitchen stove, he just rested quietly on his belly as noiseless and motionless as if he were a stuffed specimen on a shelf, held his neck erect, gave no sign of suffering from any wound, and though he was motionless, his small black eyes seemed to be ever keenly watchful. His formidable bill, very sharp, three or three and a half inches long, and shaped like a pickaxe, was held perfectly level. But the wonder was that he did not struggle or make the slightest movement. We had a tortoise-shell cat, an old Tom of great experience, who was so fond of lying under the stove in frosty weather that it was difficult even to poke him out with a broom; but when he saw and smelled that strange big fishy, black and white, speckledy bird, the like of which he had never before seen, he rushed wildly to the farther corner of the kitchen, looked back cautiously and suspiciously, and began to make a careful study of the handsome but dangerous-looking stranger. Becoming more and more curious and interested, he at length advanced a step or two for a nearer view and nearer smell; and as the wonderful bird kept absolutely motionless, he was encouraged to venture gradually nearer and nearer until within perhaps five or six feet of its breast. Then the wary loon, not liking Tom's looks in so near a view, which perhaps recalled to his mind the

plundering minks and muskrats he had to fight when they approached his nest, prepared to defend himself by slowly, almost imperceptibly drawing back his long pickaxe bill, and without the slightest fuss or stir held it level and ready just over his tail. With that dangerous bill drawn so far back out of the way, Tom's confidence in the stranger's peaceful intentions seemed almost complete, and, thus encouraged, he at last ventured forward with wondering, questioning eyes and quivering nostrils until he was only eighteen or twenty inches from the loon's smooth white breast. When the beautiful bird, apparently as peaceful and inoffensive as a flower, saw that his hairy yellow enemy had arrived at the right distance, the loon, who evidently was a fine judge of the reach of his spear, shot it forward quick as a lightning-flash, in marvelous contrast to the wonderful slowness of the preparatory poising, backward motion. The aim was true to a hairbreadth. Tom was struck right in the centre of his forehead, between the eyes. I thought his skull was cracked. Perhaps it was. The sudden astonishment of that outraged cat, the virtuous indignation and wrath, terror, and pain, are far beyond description. His eyes and screams and desperate retreat told all that. When the blow was received, he made a noise that I never heard a

cat make before or since; an awfully deep, condensed, screechy, explosive *Wuck!* as he bounced straight up in the air like a bucking bronco; and when he alighted after his spring, he rushed madly across the room and made frantic efforts to climb up the hard-finished plaster wall. Not satisfied to get the width of the kitchen away from his mysterious enemy, for the first time that cold winter he tried to get out of the house, anyhow, anywhere out of that loon-infested room. When he finally ventured to look back and saw that the barbarous bird was still there, tranquil and motionless in front of the stove, he regained command of some of his shattered senses and carefully commenced to examine his wound. Backed against the wall in the farthest corner, and keeping his eye on the outrageous bird, he tenderly touched and washed the sore spot, wetting his paw with his tongue, pausing now and then as his courage increased to glare and stare and growl at his enemy with looks and tones wonderfully human, as if saying: "You confounded fishy, unfair rascal! What did you do that for? What had I done to you? Faithless, legless, long-nosed wretch!" Intense experiences like the above bring out the humanity that is in all animals. One touch of nature, even a cat-and-loon touch, makes all the world kin.

It was a great memorable day when the first flock of passenger pigeons came to our farm, calling to mind the story we had read about them when we were at school in Scotland. Of all God's feathered people that sailed the Wisconsin sky, no other bird seemed to us so wonderful. The beautiful wanderers flew like the winds in flocks of millions from climate to climate in accord with the weather, finding their food — acorns, beechnuts, pine-nuts, cranberries, strawberries, huckleberries, juniper berries, hackberries, buckwheat, rice, wheat, oats, corn — in fields and forests thousands of miles apart. I have seen flocks streaming south in the fall so large that they were flowing over from horizon to horizon in an almost continuous stream all day long, at the rate of forty or fifty miles an hour, like a mighty river in the sky, widening, contracting, descending like falls and cataracts, and rising suddenly here and there in huge ragged masses like high-plashing spray. How wonderful the distances they flew in a day — in a year — in a lifetime! They arrived in Wisconsin in the spring just after the sun had cleared away the snow, and alighted in the woods to feed on the fallen acorns that they had missed the previous autumn. A comparatively small flock swept thousands of acres perfectly clean of acorns in a few minutes, by

moving straight ahead with a broad front. All got their share, for the rear constantly became the van by flying over the flock and alighting in front, the entire flock constantly changing from rear to front, revolving something like a wheel with a low buzzing wing roar that could be heard a long way off. In summer they feasted on wheat and oats and were easily approached as they rested on the trees along the sides of the field after a good full meal, displaying beautiful iridescent colors as they moved their necks backward and forward when we went very near them. Every shotgun was aimed at them and everybody feasted on pigeon pies, and not a few of the settlers feasted also on the beauty of the wonderful birds. The breast of the male is a fine rosy red, the lower part of the neck behind and along the sides changing from the red of the breast to gold, emerald green and rich crimson. The general color of the upper parts is grayish blue, the under parts white. The extreme length of the bird is about seventeen inches; the finely modeled slender tail about eight inches, and extent of wings twenty-four inches. The females are scarcely less beautiful. "Oh, what bonnie, bonnie birds!" we exclaimed over the first that fell into our hands. "Oh, what colors! Look at their breasts, bonnie as roses, and at their necks

aglow wi' every color juist like the wonderfu' wood ducks. Oh, the bonnie, bonnie creatures, they beat a'! Where did they a' come fra, and where are they a' gan? It's awfu' like a sin to kill them!" To this some smug, practical old sinner would remark: "Aye, it's a peety, as ye say, to kill the bonnie things, but they were made to be killed, and sent for us to eat as the quails were sent to God's chosen people, the Israelites, when they were starving in the desert ayont the Red Sea. And I must confess that meat was never put up in neater, handsomer-painted packages."

In the New England and Canada woods beechnuts were their best and most abundant food, farther north, cranberries and huckleberries. After everything was cleaned up in the north and winter was coming on, they went south for rice, corn, acorns, haws, wild grapes, crab-apples, sparkle-berries, etc. They seemed to require more than half of the continent for feeding-grounds, moving from one table to another, field to field, forest to forest, finding something ripe and wholesome all the year round. In going south in the fine Indian-summer weather they flew high and followed one another, though the head of the flock might be hundreds of miles in advance. But against head winds they took advantage of the

inequalities of the ground, flying comparatively low. All followed the leader's ups and downs over hill and dale though far out of sight, never hesitating at any turn of the way, vertical or horizontal that the leaders had taken, though the largest flocks stretched across several States, and belts of different kinds of weather.

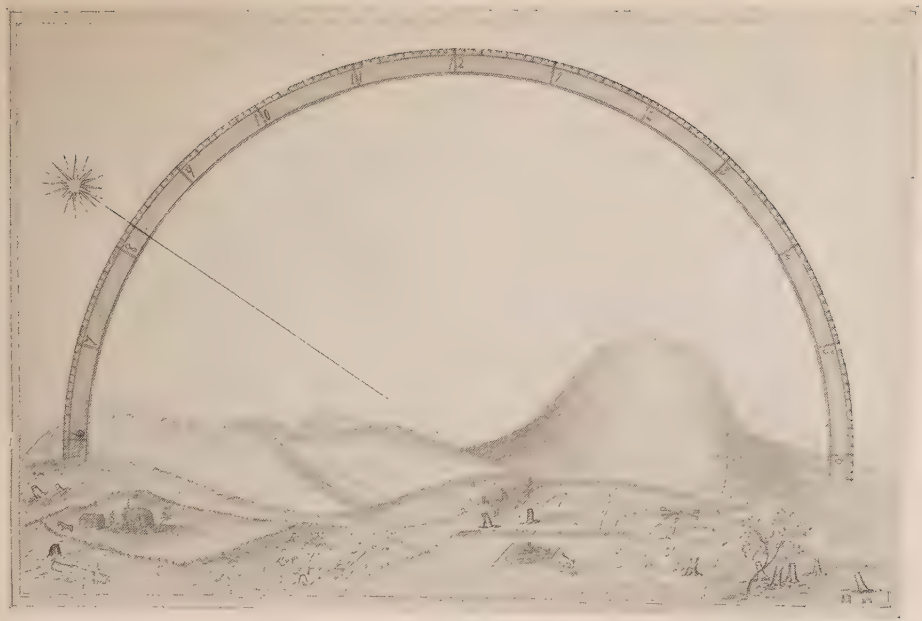
There were no roosting- or breeding-places near our farm, and I never saw any of them until long after the great flocks were exterminated. I therefore quote, from Audubon's and Pokagon's vivid descriptions.

"Toward evening," Audubon says, "they depart for the roosting-place, which may be hundreds of miles distant. One on the banks of Green River, Kentucky, was over three miles wide and forty long."

"My first view of it," says the great naturalist, "was about a fortnight after it had been chosen by the birds, and I arrived there nearly two hours before sunset. Few pigeons were then to be seen, but a great many persons with horses and wagons and armed with guns, long poles, sulphur pots, pine pitch torches, etc., had already established encampments on the borders. Two farmers had driven upwards of three hundred hogs a distance of more than a hundred miles to be fattened on slaughtered pigeons. Here and there the people employed

in plucking and salting what had already been secured were sitting in the midst of piles of birds. Dung several inches thick covered the ground. Many trees two feet in diameter were broken off at no great distance from the ground, and the branches of many of the tallest and largest had given way, as if the forest had been swept by a tornado.

"Not a pigeon had arrived at sundown. Suddenly a general cry arose — 'Here they come!' The noise they made, though still distant, reminded me of a hard gale at sea passing through the rigging of a close-reefed ship. Thousands were soon knocked down by the pole-men. The birds continued to pour in. The fires were lighted and a magnificent as well as terrifying sight presented itself. The pigeons pouring in alighted everywhere, one above another, until solid masses were formed on the branches all around. Here and there the perches gave way with a crash, and falling destroyed hundreds beneath, forcing down the dense groups with which every stick was loaded; a scene of uproar and conflict. I found it useless to speak or even to shout to those persons nearest me. Even the reports of the guns were seldom heard, and I was made aware of the firing only by seeing the shooters reloading. None dared venture within the line of devastation. The



CLOCK. THE STAR HAND RISING AND SETTING WITH THE SUN ALL THE YEAR

Invented by the author in his boyhood

hogs had been penned up in due time, the picking up of the dead and wounded being left for the next morning's employment. The pigeons were constantly coming in and it was after midnight before I perceived a decrease in the number of those that arrived. The uproar continued all night, and, anxious to know how far the sound reached I sent off a man who, returning two hours after, informed me that he had heard it distinctly three miles distant.

"Toward daylight the noise in some measure subsided; long before objects were distinguishable the pigeons began to move off in a direction quite different from that in which they had arrived the evening before, and at sunrise all that were able to fly had disappeared. The howling of the wolves now reached our ears, and the foxes, lynxes, cougars, bears, coons, opossums, and polecats were seen sneaking off, while eagles and hawks of different species, accompanied by a crowd of vultures, came to supplant them and enjoy a share of the spoil.

"Then the authors of all this devastation began their entry amongst the dead, the dying and mangled. The pigeons were picked up and piled in heaps until each had as many as they could possibly dispose of, when the hogs were let loose to feed on the remainder.

"The breeding-places are selected with refer-

ence to abundance of food, and countless myriads resort to them. At this period the note of the pigeon is *coo coo coo*, like that of the domestic species but much shorter. They caress by billing, and during incubation the male supplies the female with food. As the young grow, the tyrant of creation appears to disturb the peaceful scene, armed with axes to chop down the squab-laden trees, and the abomination of desolation and destruction produced far surpasses even that of the roosting places."

Pokagon, an educated Indian writer, says: "I saw one nesting-place in Wisconsin one hundred miles long and from three to ten miles wide. Every tree, some of them quite low and scrubby, had from one to fifty nests on each. Some of the nests overflow from the oaks to the hemlock and pine woods. When the pigeon hunters attack the breeding-places they sometimes cut the timber from thousands of acres. Millions are caught in nets with salt or grain for bait, and schooners, sometimes loaded down with the birds, are taken to New York, where they are sold for a cent apiece."

CHAPTER V

YOUNG HUNTERS

In the older eastern States it used to be considered great sport for an army of boys to assemble to hunt birds, squirrels, and every other unclaimed, unprotected live thing of shootable size. They divided into two squads, and, choosing leaders, scattered through the woods in different directions, and the party that killed the greatest number enjoyed a supper at the expense of the other. The whole neighborhood seemed to enjoy the shameful sport, especially the farmers afraid of their crops. With a great air of importance, laws were enacted to govern the gory business. For example, a gray squirrel must count four heads, a woodchuck six heads, common red squirrel two heads, black squirrel ten heads, a partridge five heads, the larger birds, such as whip-poor-wills and nighthawks two heads each, the wary crows three, and bob-whites three. But all the blessed company of mere song-birds, warblers, robins, thrushes, orioles, with nuthatches, chickadees, blue jays, woodpeckers, etc., counted only one head each. The heads of the birds were hastily wrung off and thrust

into the game-bags to be counted, saving the bodies only of what were called game, the larger squirrels, bob-whites, partridges, etc. The blood-stained bags of the best slayers were soon bulging full. Then at a given hour all had to stop and repair to the town, empty their dripping sacks, count the heads, and go rejoicing to their dinner. Although, like other wild boys, I was fond of shooting, I never had anything to do with these abominable head-hunts. And now the farmers having learned that birds are their friends wholesale slaughter has been abolished.

We seldom saw deer, though their tracks were common. The Yankee explained that they traveled and fed mostly at night, and hid in tamarack swamps and brushy places in the daytime, and how the Indians knew all about them and could find them whenever they were hungry.

Indians belonging to the Menominee and Winnebago tribes occasionally visited us at our cabin to get a piece of bread or some matches, or to sharpen their knives on our grindstone, and we boys watched them closely to see that they did n't steal Jack. We wondered at their knowledge of animals when we saw them go direct to trees on our farm, chop holes in them with their tomahawks and take out coons, of

the existence of which we had never noticed the slightest trace. In winter, after the first snow, we frequently saw three or four Indians hunting deer in company, running like hounds on the fresh, exciting tracks. The escape of the deer from these noiseless, tireless hunters was said to be well-nigh impossible; they were followed to the death.

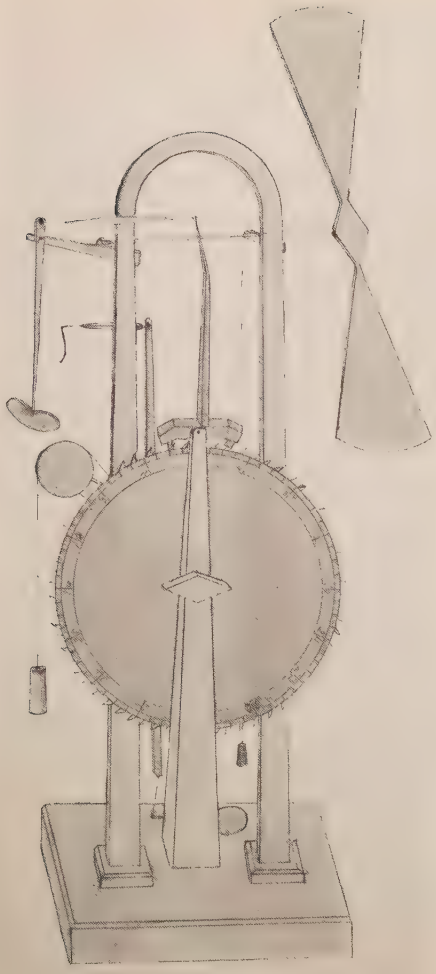
Most of our neighbors brought some sort of gun from the old country, but seldom took time to hunt, even after the first hard work of fencing and clearing was over, except to shoot a duck or prairie chicken now and then that happened to come in their way. It was only the less industrious American settlers who left their work to go far a-hunting. Two or three of our most enterprising American neighbors went off every fall with their teams to the pine regions and cranberry marshes in the northern part of the State to hunt and gather berries. I well remember seeing their wagons loaded with game when they returned from a successful hunt. Their loads consisted usually of half a dozen deer or more, one or two black bears, and fifteen or twenty bushels of cranberries; all solidly frozen. Part of both the berries and meat was usually sold in Portage; the balance furnished their families with abundance of venison, bear grease, and pies.

Winter wheat is sown in the fall, and when it is a month or so old the deer, like the wild geese, are very fond of it, especially since other kinds of food are then becoming scarce. One of our neighbors across the Fox River killed a large number, some thirty or forty, on a small patch of wheat, simply by lying in wait for them every night. Our wheat-field was the first that was sown in the neighborhood. The deer soon found it and came in every night to feast, but it was eight or nine years before we ever disturbed them. David then killed one deer, the only one killed by any of our family. He went out shortly after sundown at the time of full moon to one of our wheat-fields, carrying a double-barreled shotgun loaded with buckshot. After lying in wait an hour or so, he saw a doe and her fawn jump the fence and come cautiously into the wheat. After they were within sixty or seventy yards of him, he was surprised when he tried to take aim that about half of the moon's disc was mysteriously darkened as if covered by the edge of a dense cloud. This proved to be an eclipse. Nevertheless, he fired at the mother, and she immediately ran off, jumped the fence, and took to the woods by the way she came. The fawn danced about bewildered, wondering what had become of its mother, but finally fled to the woods. David

fired at the poor deserted thing as it ran past him but happily missed it. Hearing the shots, I joined David to learn his luck. He said he thought he must have wounded the mother, and when we were strolling about in the woods in search of her we saw three or four deer on their way to the wheat-field, led by a fine buck. They were walking rapidly, but cautiously halted at intervals of a few rods to listen and look ahead and scent the air. They failed to notice us, though by this time the moon was out of the eclipse shadow and we were standing only about fifty yards from them. I was carrying the gun. David had fired both barrels but when he was reloading one of them he happened to put the wad intended to cover the shot into the empty barrel, and so when we were climbing over the fence the buckshot had rolled out, and when I fired at the big buck I knew by the report that there was nothing but powder in the charge. The startled deer danced about in confusion for a few seconds, uncertain which way to run until they caught sight of us, when they bounded off through the woods. Next morning we found the poor mother lying about three hundred yards from the place where she was shot. She had run this distance and jumped a high fence after one of the buckshot had passed through her heart.

Excepting Sundays we boys had only two days of the year to ourselves, the 4th of July and the 1st of January. Sundays were less than half our own, on account of Bible lessons, Sunday-school lessons and church services; all the others were labor days, rain or shine, cold or warm. No wonder, then, that our two holidays were precious and that it was not easy to decide what to do with them. They were usually spent on the highest rocky hill in the neighborhood, called the Observatory; in visiting our boy friends on adjacent farms to hunt, fish, wrestle, and play games; in reading some new favorite book we had managed to borrow or buy; or in making models of machines I had invented.

One of our July days was spent with two Scotch boys of our own age hunting redwing blackbirds then busy in the corn-fields. Our party had only one single-barreled shotgun, which, as the oldest and perhaps because I was thought to be the best shot, I had the honor of carrying. We marched through the corn without getting sight of a single redwing, but just as we reached the far side of the field, a red-headed woodpecker flew up, and the Lawson boys cried: "Shoot him! Shoot him! he is just as bad as a blackbird. He eats corn!" This memorable woodpecker alighted in the top of a



BAROMETER

Invented by the author in his boyhood

white oak tree about fifty feet high. I fired from a position almost immediately beneath him, and he fell straight down at my feet. When I picked him up and was admiring his plumage, he moved his legs slightly, and I said, "Poor bird, he's no deed yet and we'll hae to kill him to put him oot o' pain," — sincerely pitying him, after we had taken pleasure in shooting him. I had seen servant girls wringing chicken necks, so with desperate humanity I took the limp unfortunate by the head, swung him around three or four times thinking I was wringing his neck, and then threw him hard on the ground to quench the last possible spark of life and make quick death doubly sure. But to our astonishment the moment he struck the ground he gave a cry of alarm and flew right straight up like a rejoicing lark into the top of the same tree, and perhaps to the same branch he had fallen from, and began to adjust his ruffled feathers, nodding and chirping and looking down at us as if wondering what in the bird world we had been doing to him. This of course banished all thought of killing, as far as that revived woodpecker was concerned, no matter how many ears of corn he might spoil, and we all heartily congratulated him on his wonderful, triumphant resurrection from three kinds of death, — shooting, neck-wringing, and destruc-

tive concussion. I suppose only one pellet had touched him, glancing on his head.

Another extraordinary shooting-affair happened one summer morning shortly after daybreak. When I went to the stable to feed the horses I noticed a big white-breasted hawk on a tall oak in front of the chicken-house, evidently waiting for a chicken breakfast. I ran to the house for the gun, and when I fired he fell about halfway down the tree, caught a branch with his claws, hung back downward and fluttered a few seconds, then managed to stand erect. I fired again to put him out of pain, and to my surprise the second shot seemed to restore his strength instead of killing him, for he flew out of the tree and over the meadow with strong and regular wing-beats for thirty or forty rods apparently as well as ever, but died suddenly in the air and dropped like a stone.

We hunted muskrats whenever we had time to run down to the lake. They are brown bunchy animals about twenty-three inches long, the tail being about nine inches in length, black in color and flattened vertically for sculling, and the hind feet are half-webbed. They look like little beavers, usually have from ten to a dozen young, are easily tamed and make interesting pets. We liked to watch them at

their work and at their meals. In the spring when the snow vanishes and the lake ice begins to melt, the first open spot is always used as a feeding-place, where they dive from the edge of the ice and in a minute or less reappear with a mussel or a mouthful of pontederia or water-lily leaves, climb back on to the ice and sit up to nibble their food, handling it very much like squirrels or marmots. It is then that they are most easily shot, a solitary hunter oftentimes shooting thirty or forty in a single day. Their nests on the rushy margins of lakes and streams, far from being hidden like those of most birds, are conspicuously large, and conical in shape like Indian wigwams. They are built of plants — rushes, sedges, mosses, etc. — and ornamented around the base with mussel-shells. It was always pleasant and interesting to see them in the fall as soon as the nights began to be frosty, hard at work cutting sedges on the edge of the meadow or swimming out through the rushes, making long glittering ripples as they sculled themselves along, diving where the water is perhaps six or eight feet deep and reappearing in a minute or so with large mouthfuls of the weedy tangled plants gathered from the bottom, returning to their big wigwams, climbing up and depositing their loads where most needed to make them yet larger and firmer

and warmer, foreseeing the freezing weather just like ourselves when we banked up our house to keep out the frost.

They lie snug and invisible all winter but do not hibernate. Through a channel carefully kept open they swim out under the ice for mussels, and the roots and stems of water-lilies, etc., on which they feed just as they do in summer. Sometimes the oldest and most enterprising of them venture to orchards near the water in search of fallen apples; very seldom, however, do they interfere with anything belonging to their mortal enemy, man. Notwithstanding they are so well hidden and protected during the winter, many of them are killed by Indian hunters, who creep up softly and spear them through the thick walls of their cabins. Indians are fond of their flesh, and so are some of the wildest of the white trappers. They are easily caught in steel traps, and after vainly trying to drag their feet from the cruel crushing jaws, they sometimes in their agony gnaw them off. Even after having gnawed off a leg they are so guileless that they never seem to learn to know and fear traps, for some are occasionally found that have been caught twice and have gnawed off a second foot. Many other animals suffering excruciating pain in these cruel traps gnaw off their legs. Crabs and lobsters are so fortunate

as to be able to shed their limbs when caught or merely frightened, apparently without suffering any pain, simply by giving themselves a little shivery shake.

The muskrat is one of the most notable and widely distributed of American animals, and millions of the gentle, industrious, beaver-like creatures are shot and trapped and speared every season for their skins, worth a dime or so — like shooting boys and girls for their garments.

Surely a better time must be drawing nigh when godlike human beings will become truly humane, and learn to put their animal fellow mortals in their hearts instead of on their backs or in their dinners. In the mean time we may just as well as not learn to live clean, innocent lives instead of slimy, bloody ones. All hale, red-blooded boys are savage, the best and boldest the savagest, fond of hunting and fishing. But when thoughtless childhood is past, the best rise the highest above all this bloody flesh and sport business, the wild foundational animal dying out day by day, as divine uplifting, transfiguring charity grows in.

Hares and rabbits were seldom seen when we first settled in the Wisconsin woods, but they multiplied rapidly after the animals that preyed upon them had been thinned out or

exterminated, and food and shelter supplied in grain-fields and log fences and the thickets of young oaks that grew up in pastures after the annual grass fires were kept out. Catching hares in the winter-time, when they were hidden in hollow fence-logs, was a favorite pastime with many of the boys whose fathers allowed them time to enjoy the sport. Occasionally a stout, lithe hare was carried out into an open snow-covered field, set free, and given a chance for its life in a race with a dog. When the snow was not too soft and deep, it usually made good its escape, for our dogs were only fat, short-legged mongrels. We sometimes discovered hares in standing hollow trees, crouching on decayed punky wood at the bottom, as far back as possible from the opening, but when alarmed they managed to climb to a considerable height if the hollow was not too wide, by bracing themselves against the sides.

Foxes, though not uncommon, we boys held steadily to work seldom saw, and as they found plenty of prairie chickens for themselves and families, they did not often come near the farmer's hen-roosts. Nevertheless the discovery of their dens was considered important. No matter how deep the den might be, it was thoroughly explored with pick and shovel by sport-loving settlers at a time when they judged

the fox was likely to be at home, but I cannot remember any case in our neighborhood where the fox was actually captured. In one of the dens a mile or two from our farm a lot of prairie chickens were found and some smaller birds.

Badger dens were far more common than fox dens. One of our fields was named Badger Hill from the number of badger holes in a hill at the end of it, but I cannot remember seeing a single one of the inhabitants.

On a stormy day in the middle of an unusually severe winter, a black bear, hungry, no doubt, and seeking something to eat, came strolling down through our neighborhood from the northern pine woods. None had been seen here before, and it caused no little excitement and alarm, for the European settlers imagined that these poor, timid, bashful bears were as dangerous as man-eating lions and tigers, and that they would pursue any human being that came in their way. This species is common in the north part of the State, and few of our enterprising Yankee hunters who went to the pineries in the fall failed to shoot at least one of them.

We saw very little of the owlish, serious-looking coons, and no wonder, since they lie hidden nearly all day in hollow trees and we

never had time to hunt them. We often heard their curious, quavering, whinnying cries on still evenings, but only once succeeded in tracing an unfortunate family through our cornfield to their den in a big oak and catching them all. One of our neighbors, Mr. McRath, a Highland Scotchman, caught one and made a pet of it. It became very tame and had perfect confidence in the good intentions of its kind friend and master. He always addressed it in speaking to it as a "little man." When it came running to him and jumped on his lap or climbed up his trousers, he would say, while patting its head as if it were a dog or a child, "Coonie, ma mannie, Coonie, ma mannie, hoo are ye the day? I think you're hungry," — as the comical pet began to examine his pockets for nuts and bits of bread, — "Na, na, there's nathing in my pooch for ye the day, my wee mannie, but I'll get ye something." He would then fetch something it liked — bread, nuts, a carrot, or perhaps a piece of fresh meat. Anything scattered for it on the floor it felt with its paw instead of looking at it, judging of its worth more by touch than sight.

The outlet of our Fountain Lake flowed past Mr. McRath's door, and the coon was very fond of swimming in it and searching for frogs and mussels. It seemed perfectly satisfied to

stay about the house without being confined, occupied a comfortable bed in a section of a hollow tree, and never wandered far. How long it lived after the death of its kind master I don't know.

I suppose that almost any wild animal may be made a pet, simply by sympathizing with it and entering as much as possible into its life. In Alaska I saw one of the common gray mountain marmots kept as a pet in an Indian family. When its master entered the house it always seemed glad, almost like a dog, and when cold or tired it snuggled up in a fold of his blanket with the utmost confidence.

We have all heard of ferocious animals, lions and tigers, etc., that were fed and spoken to only by their masters, becoming perfectly tame; and, as is well known, the faithful dog that follows man and serves him, and looks up to him and loves him as if he were a god, is a descendant of the blood-thirsty wolf or jackal. Even frogs and toads and fishes may be tamed, provided they have the uniform sympathy of one person, with whom they become intimately acquainted without the distracting and varying attentions of strangers. And surely all God's people, however serious and savage, great or small, like to play. Whales and elephants, dancing, humming gnats, and invisibly small mis-

chievous microbes, — all are warm with divine radium and must have lots of fun in them.

As far as I know, all wild creatures keep themselves clean. Birds, it seems to me, take more pains to bathe and dress themselves than any other animals. Even ducks, though living so much in water, dip and scatter cleansing showers over their backs, and shake and preen their feathers as carefully as land-birds. Watching small singers taking their morning baths is very interesting, particularly when the weather is cold. Alighting in a shallow pool, they oftentimes show a sort of dread of dipping into it, like children hesitating about taking a plunge, as if they felt the same kind of shock, and this makes it easy for us to sympathize with the little feathered people.

Occasionally I have seen from my study-window red-headed linnets bathing in dew when water elsewhere was scarce. A large Monterey cypress with broad branches and innumerable leaves on which the dew lodges in still nights made favorite bathing-places. Alighting gently, as if afraid to waste the dew, they would pause and fidget as they do before beginning to plash in pools, then dip and scatter the drops in showers and get as thorough a bath as they would in a pool. I have also seen the same kind of baths taken by birds on the

boughs of silver firs on the edge of a glacier meadow, but nowhere have I seen the dew-drops so abundant as on the Monterey cypress; and the picture made by the quivering wings and irised dew was memorably beautiful. Children, too, make fine pictures plashing and crowing in their little tubs. How widely different from wallowing pigs, bathing with great show of comfort and rubbing themselves dry against rough-barked trees!

Some of our own species seem fairly to dread the touch of water. When the necessity of absolute cleanliness by means of frequent baths was being preached by a friend who had been reading Combe's Physiology, in which he had learned something of the wonders of the skin with its millions of pores that had to be kept open for health, one of our neighbors remarked: "Oh! that's unnatural. It's well enough to wash in a tub maybe once or twice a year, but not to be paddling in the water all the time like a frog in a spring-hole." Another neighbor, who prided himself on his knowledge of big words, said with great solemnity: "I never can believe that man is amphibious!"

Natives of tropic islands pass a large part of their lives in water, and seem as much at home in the sea as on the land; swim and dive, pursue fishes, play in the waves like surf-ducks and

seals, and explore the coral gardens and groves and seaweed meadows as if truly amphibious. Even the natives of the far north bathe at times. I once saw a lot of Eskimo boys ducking and plashing right merrily in the Arctic Ocean.

It seemed very wonderful to us that the wild animals could keep themselves warm and strong in winter when the temperature was far below zero. Feeble-looking rabbits scud away over the snow, lithe and elastic, as if glorying in the frosty, sparkling weather and sure of their dinners. I have seen gray squirrels dragging ears of corn about as heavy as themselves out of our field through loose snow and up a tree, balancing them on limbs and eating in comfort with their dry, electric tails spread airily over their backs. Once I saw a fine hardy fellow go into a knothole. Thrusting in my hand I caught him and pulled him out. As soon as he guessed what I was up to, he took the end of my thumb in his mouth and sunk his teeth right through it, but I gripped him hard by the neck, carried him home, and shut him up in a box that contained about half a bushel of hazel- and hickory-nuts, hoping that he would not be too much frightened and discouraged to eat while thus imprisoned after the rough handling he had suffered. I soon learned, however, that sympathy in this direction was wasted, for no sooner did I pop

him in than he fell to with right hearty appetite, gnawing and munching the nuts as if he had gathered them himself and was very hungry that day. Therefore, after allowing time enough for a good square meal, I made haste to get him out of the nut-box and shut him up in a spare bedroom, in which father had hung a lot of selected ears of Indian corn for seed. They were hung up by the husks on cords stretched across from side to side of the room. The squirrel managed to jump from the top of one of the bed-posts to the cord, cut off an ear, and let it drop to the floor. He then jumped down, got a good grip of the heavy ear, carried it to the top of one of the slippery, polished bed-posts, seated himself comfortably, and, holding it well balanced, deliberately pried out one kernel at a time with his long chisel teeth, ate the soft, sweet germ, and dropped the hard part of the kernel. In this masterly way, working at high speed, he demolished several ears a day, and with a good warm bed in a box made himself at home and grew fat. Then naturally, I suppose, free romping in the snow and tree-tops with companions came to mind. Anyhow he began to look for a way of escape. Of course he first tried the window, but found that his teeth made no impression on the glass. Next he tried the sash and gnawed the

wood off level with the glass; then father happened to come upstairs and discovered the mischief that was being done to his seed corn and window and immediately ordered him out of the house.

The flying squirrel was one of the most interesting of the little animals we found in the woods, a beautiful brown creature, with fine eyes and smooth, soft fur like that of a mole or field mouse. He is about half as long as the gray squirrel, but his wide-spread tail and the folds of skin along his sides that form the wings make him look broad and flat, something like a kite. In the evenings our cat often brought them to her kittens at the shanty, and later we saw them fly during the day from the trees we were chopping. They jumped and glided off smoothly and apparently without effort, like birds, as soon as they heard and felt the breaking shock of the strained fibers at the stump, when the trees they were in began to totter and groan. They can fly, or rather glide, twenty or thirty yards from the top of a tree twenty or thirty feet high to the foot of another, gliding upward as they reach the trunk, or if the distance is too great they alight comfortably on the ground and make haste to the nearest tree, and climb just like the wingless squirrels.

Every boy and girl loves the little fairy, airy

striped chipmunk, half squirrel, half spermophile. He is about the size of a field mouse, and often made us think of linnets and song sparrows as he frisked about gathering nuts and berries. He likes almost all kinds of grain, berries, and nuts, — hazel-nuts, hickory-nuts, strawberries, huckleberries, wheat, oats, corn, — he is fond of them all and thrives on them. Most of the hazel bushes on our farm grew along the fences as if they had been planted for the chipmunks alone, for the rail fences were their favorite highways. We never wearied watching them, especially when the hazel-nuts were ripe and the little fellows were sitting on the rails nibbling and handling them like tree-squirrels. We used to notice too that, although they are very neat animals, their lips and fingers were dyed red like our own, when the strawberries and huckleberries were ripe. We could always tell when the wheat and oats were in the milk by seeing the chipmunks feeding on the ears. They kept nibbling at the wheat until it was harvested and then gleaned in the stubble, keeping up a careful watch for their enemies, — dogs, hawks, and shrikes. They are as widely distributed over the continent as the squirrels, various species inhabiting different regions on the mountains and lowlands, but all the different kinds have the same general char-

acteristics of light, airy cheerfulness and good nature.

Before the arrival of farmers in the Wisconsin woods the small ground squirrels, called "gophers," lived chiefly on the seeds of wild grasses and weeds, but after the country was cleared and ploughed no feasting animal fell to more heartily on the farmer's wheat and corn. Increasing rapidly in numbers and knowledge, they became very destructive, especially in the spring when the corn was planted, for they learned to trace the rows and dig up and eat the three or four seeds in each hill about as fast as the poor farmers could cover them. And unless great pains were taken to diminish the numbers of the cunning little robbers, the fields had to be planted two or three times over, and even then large gaps in the rows would be found. The loss of the grain they consumed after it was ripe, together with the winter stores laid up in their burrows, amounted to little as compared with the loss of the seed on which the whole crop depended.

One evening about sundown, when my father sent me out with the shotgun to hunt them in a stubble field, I learned something curious and interesting in connection with these mischievous gophers, though just then they were doing no harm. As I strolled through the stubble

watching for a chance for a shot, a shrike flew past me and alighted on an open spot at the mouth of a burrow about thirty yards ahead of me. Curious to see what he was up to, I stood still to watch him. He looked down the gopher hole in a listening attitude, then looked back at me to see if I was coming, looked down again and listened, and looked back at me. I stood perfectly still, and he kept twitching his tail, seeming uneasy and doubtful about venturing to do the savage job that I soon learned he had in his mind. Finally, encouraged by my keeping so still, to my astonishment he suddenly vanished in the gopher hole.

A bird going down a deep narrow hole in the ground like a ferret or a weasel seemed very strange, and I thought it would be a fine thing to run forward, clap my hand over the hole, and have the fun of imprisoning him and seeing what he would do when he tried to get out. So I ran forward but stopped when I got within a dozen or fifteen yards of the hole, thinking it might perhaps be more interesting to wait and see what would naturally happen without my interference. While I stood there looking and listening, I heard a great disturbance going on in the burrow, a mixed lot of keen squeaking, shrieking, distressful cries, telling that down in the dark something terrible was being done.

Then suddenly out popped a half-grown gopher, four and a half or five inches long, and, without stopping a single moment to choose a way of escape, ran screaming through the stubble straight away from its home, quickly followed by another and another, until some half-dozen were driven out, all of them crying and running in different directions as if at this dreadful time home, sweet home, was the most dangerous and least desirable of any place in the wide world. Then out came the shrike, flew above the runaway gopher children, and, diving on them, killed them one after another with blows at the back of the skull. He then seized one of them, dragged it to the top of a small clod so as to be able to get a start, and laboriously made out to fly with it about ten or fifteen yards, when he alighted to rest. Then he dragged it to the top of another clod and flew with it about the same distance, repeating this hard work over and over again until he managed to get one of the gophers on to the top of a log fence. How much he ate of his hard-won prey, or what he did with the others, I can't tell, for by this time the sun was down and I had to hurry home to my chores.

CHAPTER VI

THE PLOUGHBOY

At first, wheat, corn, and potatoes were the principal crops we raised; wheat especially. But in four or five years the soil was so exhausted that only five or six bushels an acre, even in the better fields, was obtained, although when first ploughed twenty and twenty-five bushels was about the ordinary yield. More attention was then paid to corn, but without fertilizers the corn-crop also became very meager. At last it was discovered that English clover would grow on even the exhausted fields, and that when ploughed under and planted with corn, or even wheat, wonderful crops were raised. This caused a complete change in farming methods; the farmers raised fertilizing clover, planted corn, and fed the crop to cattle and hogs.

But no crop raised in our wilderness was so surprisingly rich and sweet and purely generous to us boys and, indeed, to everybody as the watermelons and muskmelons. We planted a large patch on a sunny hill-slope the very first spring, and it seemed miraculous that a few handfuls of little flat seeds should in a few

months send up a hundred wagon-loads of crisp, sumptuous, red-hearted and yellow-hearted fruits covering all the hill. We soon learned to know when they were in their prime, and when over-ripe and mealy. Also that if a second crop was taken from the same ground without fertilizing it, the melons would be small and what we called soapy; that is, soft and smooth, utterly uncrisp, and without a trace of the lively freshness and sweetness of those raised on virgin soil. Coming in from the farm work at noon, the half-dozen or so of melons we had placed in our cold spring were a glorious luxury that only weary barefooted farm boys can ever know.

Spring was not very trying as to temperature, and refreshing rains fell at short intervals. The work of ploughing commenced as soon as the frost was out of the ground. Corn- and potato-planting and the sowing of spring wheat was comparatively light work, while the nesting birds sang cheerily, grass and flowers covered the marshes and meadows and all the wild, uncleared parts of the farm, and the trees put forth their new leaves, those of the oaks forming beautiful purple masses as if every leaf were a petal; and with all this we enjoyed the mild soothing winds, the humming of innumerable small insects and hylas, and the freshness and

fragrance of everything. Then, too, came the wonderful passenger pigeons streaming from the south, and flocks of geese and cranes, filling all the sky with whistling wings.

The summer work, on the contrary, was deadly heavy, especially harvesting and corn-hoeing. All the ground had to be hoed over for the first few years, before father bought cultivators or small weed-covering ploughs, and we were not allowed a moment's rest. The hoes had to be kept working up and down as steadily as if they were moved by machinery. Ploughing for winter wheat was comparatively easy, when we walked barefooted in the furrows, while the fine autumn tints kindled in the woods, and the hillsides were covered with golden pumpkins.

In summer the chores were grinding scythes, feeding the animals, chopping stove-wood, and carrying water up the hill from the spring on the edge of the meadow, etc. Then breakfast, and to the harvest or hay-field. I was foolishly ambitious to be first in mowing and cradling, and by the time I was sixteen led all the hired men. An hour was allowed at noon for dinner and more chores. We stayed in the field until dark, then supper, and still more chores, family worship, and to bed; making altogether a hard, sweaty day of about sixteen or seventeen hours.

Think of that, ye blessed eight-hour-day laborers!

In winter father came to the foot of the stairs and called us at six o'clock to feed the horses and cattle, grind axes, bring in wood, and do any other chores required, then breakfast, and out to work in the mealy, frosty snow by daybreak, chopping, fencing, etc. So in general our winter work was about as restless and trying as that of the long-day summer. No matter what the weather, there was always something to do. During heavy rains or snowstorms we worked in the barn, shelling corn, fanning wheat, thrashing with the flail, making axe-handles or ox-yokes, mending things, or sprouting and sorting potatoes in the cellar.

No pains were taken to diminish or in any way soften the natural hardships of this pioneer farm life; nor did any of the Europeans seem to know how to find reasonable ease and comfort if they would. The very best oak and hickory fuel was embarrassingly abundant and cost nothing but cutting and common sense; but instead of hauling great heart-cheering loads of it for wide, open, all-welcoming, climate-changing, beauty-making, Godlike ingle-fires, it was hauled with weary heart-breaking industry into fences and waste places to get it out of the way of the plough, and out of the way of

doing good. The only fire for the whole house was the kitchen stove, with a fire-box about eighteen inches long and eight inches wide and deep, — scant space for three or four small sticks, around which in hard zero weather all the family of ten persons shivered, and beneath which in the morning we found our socks and coarse, soggy boots frozen solid. We were not allowed to start even this despicable little fire in its black box to thaw them. No, we had to squeeze our throbbing, aching, chilblained feet into them, causing greater pain than toothache, and hurry out to chores. Fortunately the miserable chilblain pain began to abate as soon as the temperature of our feet approached the freezing-point, enabling us in spite of hard work and hard frost to enjoy the winter beauty, — the wonderful radiance of the snow when it was starry with crystals, and the dawns and the sunsets and white noons, and the cheery, enlivening company of the brave chickadees and nuthatches.

The winter stars far surpassed those of our stormy Scotland in brightness, and we gazed and gazed as though we had never seen stars before. Oftentimes the heavens were made still more glorious by auroras, the long lance rays, called "Merry Dancers" in Scotland, streaming with startling tremulous motion to

the zenith. Usually the electric auroral light is white or pale yellow, but in the third or fourth of our Wisconsin winters there was a magnificently colored aurora that was seen and admired over nearly all the continent. The whole sky was draped in graceful purple and crimson folds glorious beyond description. Father called us out into the yard in front of the house where we had a wide view, crying, "Come! Come, mother! Come, bairns! and see the glory of God. All the sky is clad in a robe of red light. Look straight up to the crown where the folds are gathered. Hush and wonder and adore, for surely this is the clothing of the Lord Himself, and perhaps He will even now appear looking down from his high heaven." This celestial show was far more glorious than anything we had ever yet beheld, and throughout that wonderful winter hardly anything else was spoken of.

We even enjoyed the snowstorms, the thronging crystals, like daisies, coming down separate and distinct, were very different from the tufted flakes we enjoyed so much in Scotland, when we ran into the midst of the slow-falling feathery throng shouting with enthusiasm: "Jennie's plucking her doos! Jennie's plucking her doos!" (doves).

Nature has many ways of thinning and prun-

ing and trimming her forests, — lightning-strokes, heavy snow, and storm-winds to shatter and blow down whole trees here and there or break off branches as required. The results of these methods I have observed in different forests, but only once have I seen pruning by rain. The rain froze on the trees as it fell and grew so thick and heavy that many of them lost a third or more of their branches. The view of the woods after the storm had passed and the sun shone forth was something never to be forgotten. Every twig and branch and rugged trunk was encased in pure crystal ice, and each oak and hickory and willow became a fairy crystal palace. Such dazzling brilliance, such effects of white light and irised light glowing and flashing I had never seen before, nor have I since. This sudden change of the leafless woods to glowing silver was, like the great aurora, spoken of for years, and is one of the most beautiful of the many pictures that enriches my life. And besides the great shows there were thousands of others even in the coldest weather manifesting the utmost fineness and tenderness of beauty and affording noble compensation for hardship and pain.

One of the most striking of the winter sounds was the loud roaring and rumbling of the ice on our lake, from its shrinking and expanding

with the changes of the weather. The fishermen who were catching pickerel said that they had no luck when this roaring was going on above the fish. I remember how frightened we boys were when on one of our New Year holidays we were taking a walk on the ice and heard for the first time the sudden rumbling roar beneath our feet and running on ahead of us, creaking and whooping as if all the ice eighteen or twenty inches thick was breaking.

In the neighborhood of our Wisconsin farm there were extensive swamps consisting in great part of a thick sod of very tough carex roots covering thin, watery lakes of mud. They originated in glacier lakes that were gradually overgrown. This sod was so tough that oxen with loaded wagons could be driven over it without cutting down through it, although it was afloat. The carpenters who came to build our frame house, noticing how the sedges sunk beneath their feet, said that if they should break through, they would probably be well on their way to California before touching bottom. On the contrary, all these lake-basins are shallow as compared with their width. When we went into the Wisconsin woods there was not a single wheel-track or cattle-track. The only man-made road was an Indian trail along the Fox River between Portage and Packwauckee

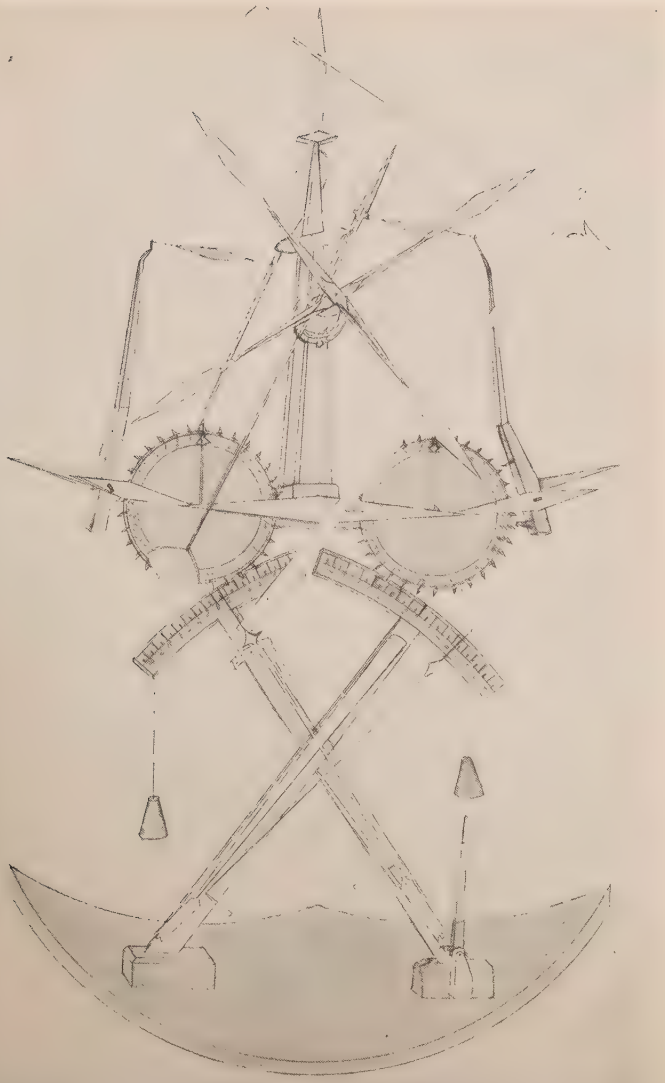
Lake. Of course the deer, foxes, badgers, coons, skunks, and even the squirrels had well-beaten tracks from their dens and hiding-places in thickets, hollow trees, and the ground, but they did not reach far, and but little noise was made by the soft-footed travelers in passing over them, only a slight rustling and swishing among fallen leaves and grass.

Corduroying the swamps formed the principal part of road-making among the early settlers for many a day. At these annual road-making gatherings opportunity was offered for discussion of the news, politics, religion, war, the state of the crops, comparative advantages of the new country over the old, and so forth, but the principal opportunities, recurring every week, were the hours after Sunday church services. I remember hearing long talks on the wonderful beauty of the Indian corn; the wonderful melons, so wondrous fine for "sloken a body on hot days"; their contempt for tomatoes, so fine to look at with their sunny colors and so disappointing in taste; the miserable cucumbers the "Yankee bodies" ate, though tasteless as rushes; the character of the Yankees, etcetera. Then there were long discussions about the Russian war, news of which was eagerly gleaned from Greeley's "New York Tribune"; the great battles of the Alma, the

charges at Balaklava and Inkerman; the siege of Sebastopol; the military genius of Todleben; the character of Nicholas; the character of the Russian soldier, his stubborn bravery, who for the first time in history withstood the British bayonet charges; the probable outcome of the terrible war; the fate of Turkey, and so forth.

Very few of our old-country neighbors gave much heed to what are called spirit-rappings. On the contrary, they were regarded as a sort of sleight-of-hand humbug. Some of these spirits seem to be stout able-bodied fellows, judging by the weights they lift and the heavy furniture they bang about. But they do no good work that I know of; never saw wood, grind corn, cook, feed the hungry, or go to the help of poor anxious mothers at the bedsides of their sick children. I noticed when I was a boy that it was not the strongest characters who followed so-called mediums. When a rapping-storm was at its height in Wisconsin, one of our neighbors, an old Scotchman, remarked, "Thay puir silly medium-bodies may gang to the deil wi' their rappin' speerits, for they dae nae gude, and I think the deil 's their fayther."

Although in the spring of 1849 there was no other settler within a radius of four miles of our Fountain Lake farm, in three or four years al-



COMBINED THERMOMETER, HYGROMETER, BAROMETER AND PYROMETER

Invented by the author in his boyhood

most every quarter-section of government land was taken up, mostly by enthusiastic home-seekers from Great Britain, with only here and there Yankee families from adjacent states, who had come drifting indefinitely westward in covered wagons, seeking their fortunes like winged seeds; all alike striking root and gripping the glacial drift soil as naturally as oak and hickory trees; happy and hopeful, establishing homes and making wider and wider fields in the hospitable wilderness. The axe and plough were kept very busy; cattle, horses, sheep, and pigs multiplied; barns and corn-cribs were filled up, and man and beast were well fed; a schoolhouse was built, which was used also for a church; and in a very short time the new country began to look like an old one.

Comparatively few of the first settlers suffered from serious accidents. One of our neighbors had a finger shot off, and on a bitter, frosty night had to be taken to a surgeon in Portage, in a sled drawn by slow, plodding oxen, to have the shattered stump dressed. Another fell from his wagon and was killed by the wheel passing over his body. An acre of ground was reserved and fenced for graves, and soon consumption came to fill it. One of the saddest instances was that of a Scotch family from Edinburgh, consisting of a father, son, and daughter, who

settled on eighty acres of land within half a mile of our place. The daughter died of consumption the third year after their arrival, the son one or two years later, and at last the father followed his two children. Thus sadly ended bright hopes and dreams of a happy home in rich and free America.

Another neighbor, I remember, after a lingering illness died of the same disease in midwinter, and his funeral was attended by the neighbors in sleighs during a driving snowstorm when the thermometer was fifteen or twenty degrees below zero. The great white plague carried off another of our near neighbors, a fine Scotchman, the father of eight promising boys, when he was only about forty-five years of age. Most of those who suffered from this disease seemed hopeful and cheerful up to a very short time before their death, but Mr. Reid, I remember, on one of his last visits to our house, said with brave resignation: "I know that never more in this world can I be well, but I must just submit. I must just submit."

One of the saddest deaths from other causes than consumption was that of a poor feeble-minded man whose brother, a sturdy, devout, severe puritan, was a very hard taskmaster. Poor half-witted Charlie was kept steadily at work, — although he was not able to do much,

for his body was about as feeble as his mind. He never could be taught the right use of an axe, and when he was set to chopping down trees for firewood he feebly hacked and chipped round and round them, sometimes spending several days in nibbling down a tree that a beaver might have gnawed down in half the time. Occasionally when he had an extra large tree to chop, he would go home and report that the tree was too tough and strong for him and that he could never make it fall. Then his brother, calling him a useless creature, would fell it with a few well-directed strokes, and leave Charlie to nibble away at it for weeks trying to make it into stove-wood.

His guardian brother, delighting in hard work and able for anything, was as remarkable for strength of body and mind as poor Charlie for childishness. All the neighbors pitied Charlie, especially the women, who never missed an opportunity to give him kind words, cookies, and pie; above all, they bestowed natural sympathy on the poor imbecile as if he were an unfortunate motherless child. In particular, his nearest neighbors, Scotch Highlanders, warmly welcomed him to their home and never wearied in doing everything that tender sympathy could suggest. To those friends he ran gladly at every opportunity. But after years of

suffering from overwork and illness his feeble health failed, and he told his Scotch friends one day that he was not able to work any more or do anything that his brother wanted him to do, that he was tired of life, and that he had come to thank them for their kindness and to bid them good-bye, for he was going to drown himself in Muir's lake. "Oh, Charlie! Charlie!" they cried, "you must n't talk that way. Cheer up! You will soon be stronger. We all love you. Cheer up! Cheer up! And always come here whenever you need anything."

"Oh, no! my friends," he pathetically replied, "I know you love me, but I can't cheer up any more. My heart's gone, and I want to die."

Next day, when Mr. Anderson, a carpenter whose house was on the west shore of our lake, was going to a spring he saw a man wade out through the rushes and lily-pads and throw himself forward into deep water. This was poor Charlie. Fortunately, Mr. Anderson had a skiff close by, and as the distance was not great he reached the broken-hearted imbecile in time to save his life, and after trying to cheer him took him home to his brother. But even this terrible proof of despair failed to soften his brother. He seemed to regard the attempt at suicide simply as a crime calculated to bring

harm to religion. Though snatched from the lake to his bed, poor Charlie lived only a few days longer. A physician who was called when his health first became seriously impaired reported that he was suffering from Bright's disease. After all was over, the stoical brother walked over to the neighbor who had saved Charlie from drowning, and, after talking on ordinary affairs, crops, the weather, etc., said in a careless tone: "I have a little job of carpenter work for you, Mr. Anderson." "What is it, Mr. —— ?" "I want you to make a coffin." "A coffin!" said the startled carpenter. "Who is dead?" "Charlie," he coolly replied. All the neighbors were in tears over the poor child man's fate. But, strange to say, the brother who had faithfully cared for him controlled and concealed all his natural affection as incompatible with sound faith.

The mixed lot of settlers around us offered a favorable field for observation of the different kinds of people of our own race. We were swift to note the way they behaved, the differences in their religion and morals, and in their ways of drawing a living from the same kind of soil under the same general conditions; how they protected themselves from the weather; how they were influenced by new doctrines and old ones seen in new lights in preaching, lecturing,

debating, bringing up their children, etc., and how they regarded the Indians, those first settlers and owners of the ground that was being made into farms.

I well remember my father's discussing with a Scotch neighbor, a Mr. George Mair, the Indian question as to the rightful ownership of the soil. Mr. Mair remarked one day that it was pitiful to see how the unfortunate Indians, children of Nature, living on the natural products of the soil, hunting, fishing, and even cultivating small corn-fields on the most fertile spots, were now being robbed of their lands and pushed ruthlessly back into narrower and narrower limits by alien races who were cutting off their means of livelihood. Father replied that surely it could never have been the intention of God to allow Indians to rove and hunt over so fertile a country and hold it forever in unproductive wildness, while Scotch and Irish and English farmers could put it to so much better use. Where an Indian required thousands of acres for his family, these acres in the hands of industrious, God-fearing farmers would support ten or a hundred times more people in a far worthier manner, while at the same time helping to spread the gospel.

Mr. Mair urged that such farming as our first immigrants were practicing was in many

ways rude and full of the mistakes of ignorance, yet, rude as it was, and ill-tilled as were most of our Wisconsin farms by unskillful, inexperienced settlers who had been merchants and mechanics and servants in the old countries, how should we like to have specially trained and educated farmers drive us out of our homes and farms, such as they were, making use of the same argument, that God could never have intended such ignorant, unprofitable, devastating farmers as we were to occupy land upon which scientific farmers could raise five or ten times as much on each acre as we did? And I well remember thinking that Mr. Mair had the better side of the argument. It then seemed to me that, whatever the final outcome might be, it was at this stage of the fight only an example of the rule of might with but little or no thought for the right or welfare of the other fellow if he were the weaker; that "they should take who had the power, and they should keep who can," as Wordsworth makes the marauding Scottish Highlanders say.

Many of our old neighbors toiled and sweated and grubbed themselves into their graves years before their natural dying days, in getting a living on a quarter-section of land and vaguely trying to get rich, while bread and raiment might have been serenely won on

less than a fourth of this land, and time gained to get better acquainted with God.

I was put to the plough at the age of twelve, when my head reached but little above the handles, and for many years I had to do the greater part of the ploughing. It was hard work for so small a boy; nevertheless, as good ploughing was exacted from me as if I were a man, and very soon I had to become a good ploughman, or rather ploughboy. None could draw a straighter furrow. For the first few years the work was particularly hard on account of the tree-stumps that had to be dodged. Later the stumps were all dug and chopped out to make way for the McCormick reaper, and because I proved to be the best chopper and stump-digger I had nearly all of it to myself. It was dull, hard work leaning over on my knees all day, chopping out those tough oak and hickory stumps, deep down below the crowns of the big roots. Some, though fortunately not many, were two feet or more in diameter.

And as I was the eldest boy, the greater part of all the other hard work of the farm quite naturally fell on me. I had to split rails for long lines of zigzag fences. The trees that were tall enough and straight enough to afford one or two logs ten feet long were used for rails, the others, too knotty or cross-grained, were

disposed of in log and cordwood fences. Making rails was hard work and required no little skill. I used to cut and split a hundred a day from our short, knotty oak timber, swinging the axe and heavy mallet, often with sore hands, from early morning to night. Father was not successful as a rail-splitter. After trying the work with me a day or two, he in despair left it all to me. I rather liked it, for I was proud of my skill, and tried to believe that I was as tough as the timber I mauled, though this and other heavy jobs stopped my growth and earned for me the title "Runt of the family."

In those early days, long before the great labor-saving machines came to our help, almost everything connected with wheat-raising abounded in trying work, — cradling in the long, sweaty dog-days, raking and binding, stacking, thrashing, — and it often seemed to me that our fierce, over-industrious way of getting the grain from the ground was too closely connected with grave-digging. The staff of life, naturally beautiful, oftentimes suggested the grave-digger's spade. Men and boys, and in those days even women and girls, were cut down while cutting the wheat. The fat folk grew lean and the lean leaner, while the rosy cheeks brought from Scotland and other cool countries across the sea faded to yellow like the

wheat. We were all made slaves through the vice of over-industry. The same was in great part true in making hay to keep the cattle and horses through the long winters. We were called in the morning at four o'clock and seldom got to bed before nine, making a broiling, seething day seventeen hours long loaded with heavy work, while I was only a small stunted boy; and a few years later my brothers David and Daniel and my older sisters had to endure about as much as I did. In the harvest dog-days and dog-nights and dog-mornings, when we arose from our clammy beds, our cotton shirts clung to our backs as wet with sweat as the bathing-suits of swimmers, and remained so all the long, sweltering days. In mowing and cradling, the most exhausting of all the farm work, I made matters worse by foolish ambition in keeping ahead of the hired men. Never a warning word was spoken of the dangers of over-work. On the contrary, even when sick we were held to our tasks as long as we could stand. Once in harvest-time I had the mumps and was unable to swallow any food except milk, but this was not allowed to make any difference, while I staggered with weakness and sometimes fell headlong among the sheaves. Only once was I allowed to leave the harvest-field — when I was stricken down with pneu-

monia. I lay gasping for weeks, but the Scotch are hard to kill and I pulled through. No physician was called, for father was an enthusiast, and always said and believed that God and hard work were by far the best doctors.

None of our neighbors were so excessively industrious as father; though nearly all of the Scotch, English, and Irish worked too hard, trying to make good homes and to lay up money enough for comfortable independence. Excepting small garden-patches, few of them had owned land in the old country. Here their craving land-hunger was satisfied, and they were naturally proud of their farms and tried to keep them as neat and clean and well-tilled as gardens. To accomplish this without the means for hiring help was impossible. Flowers were planted about the neatly kept log or frame houses; barnyards, granaries, etc., were kept in about as neat order as the homes, and the fences and corn-rows were rigidly straight. But every uncut weed distressed them; so also did every ungathered ear of grain, and all that was lost by birds and gophers; and this overcarefulness bred endless work and worry.

As for money, for many a year there was precious little of it in the country for anybody. Eggs sold at six cents a dozen in trade, and five-cent calico was exchanged at twenty-five cents

a yard. Wheat brought fifty cents a bushel in trade. To get cash for it before the Portage Railway was built, it had to be hauled to Milwaukee, a hundred miles away. On the other hand, food was abundant — eggs, chickens, pigs, cattle, wheat, corn, potatoes, garden vegetables of the best, and wonderful melons as luxuries. No other wild country I have ever known extended a kinder welcome to poor immigrants. On the arrival in the spring, a log house could be built, a few acres ploughed, the virgin sod planted with corn, potatoes, etc., and enough raised to keep a family comfortably the very first year; and wild hay for cows and oxen grew in abundance on the numerous meadows. The American settlers were wisely content with smaller fields and less of everything, kept indoors during excessively hot or cold weather, rested when tired, went off fishing and hunting at the most favorable times and seasons of the day and year, gathered nuts and berries, and in general tranquilly accepted all the good things the fertile wilderness offered.

After eight years of this dreary work of clearing the Fountain Lake farm, fencing it and getting it in perfect order, building a frame house and the necessary outbuildings for the cattle and horses, — after all this had been victoriously accomplished, and we had made

'out to escape with life, — father bought a half-section of wild land about four or five miles to the eastward and began all over again to clear and fence and break up other fields for a new farm, doubling all the stunting, heartbreaking chopping, grubbing, stump-digging, rail-splitting, fence-building, barn-building, house-building, and so forth.

By this time I had learned to run the breaking plough. Most of these ploughs were very large, turning furrows from eighteen inches to two feet wide, and were drawn by four or five yoke of oxen. They were used only for the first ploughing, in breaking up the wild sod woven into a tough mass, chiefly by the cordlike roots of perennial grasses, reinforced by the tap-roots of oak and hickory bushes, called "grubs," some of which were more than a century old and four or five inches in diameter. In the hardest ploughing on the most difficult ground, the grubs were said to be as thick as the hair on a dog's back. If in good trim, the plough cut through and turned over these grubs as if the century-old wood were soft like the flesh of carrots and turnips; but if not in good trim the grubs promptly tossed the plough out of the ground. A stout Highland Scot, our neighbor, whose plough was in bad order and who did not know how to trim it, was vainly trying to

keep it in the ground by main strength, while his son, who was driving and merrily whipping up the cattle, would cry encouragingly, "Haud her in, fayther! Haud her in!"

"But hoo i' the deil can I haud her in when she'll no *stop* in?" his perspiring father would reply, gasping for breath between each word. On the contrary, with the share and coulter sharp and nicely adjusted, the plough, instead of shying at every grub and jumping out, ran straight ahead without need of steering or holding, and gripped the ground so firmly that it could hardly be thrown out at the end of the furrow.

Our breaker turned a furrow two feet wide, and on our best land, where the sod was toughest, held so firm a grip that at the end of the field my brother, who was driving the oxen, had to come to my assistance in throwing it over on its side to be drawn around the end of the landing; and it was all I could do to set it up again. But I learned to keep that plough in such trim that after I got started on a new furrow I used to ride on the crossbar between the handles with my feet resting comfortably on the beam, without having to steady or steer it in any way on the whole length of the field, unless we had to go round a stump, for it sawed through the biggest grubs without flinching.

The growth of these grubs was interesting to me. When an acorn or hickory-nut had sent up its first season's sprout, a few inches long, it was burned off in the autumn grass fires; but the root continued to hold on to life, formed a callus over the wound and sent up one or more shoots the next spring. Next autumn these new shoots were burned off, but the root and calloused head, about level with the surface of the ground, continued to grow and send up more new shoots; and so on, almost every year until very old, probably far more than a century, while the tops, which would naturally have become tall broad-headed trees, were only mere sprouts seldom more than two years old. Thus the ground was kept open like a prairie, with only five or six trees to the acre, which had escaped the fire by having the good fortune to grow on a bare spot at the door of a fox or badger den, or between straggling grass-tufts wide apart on the poorest sandy soil.

The uniformly rich soil of the Illinois and Wisconsin prairies produced so close and tall a growth of grasses for fires that no tree could live on it. Had there been no fires, these fine prairies, so marked a feature of the country, would have been covered by the heaviest forests. As soon as the oak openings in our neighborhood were settled, and the farmers had

prevented running grass-fires, the grubs grew up into trees and formed tall thickets so dense that it was difficult to walk through them and every trace of the sunny "openings" vanished.

We called our second farm Hickory Hill, from its many fine hickory trees and the long gentle slope leading up to it. Compared with Fountain Lake farm it lay high and dry. The land was better, but it had no living water, no spring or stream or meadow or lake. A well ninety feet deep had to be dug, all except the first ten feet or so in fine-grained sandstone. When the sandstone was struck, my father, on the advice of a man who had worked in mines, tried to blast the rock; but from lack of skill the blasting went on very slowly, and father decided to have me do all the work with mason's chisels, a long, hard job, with a good deal of danger in it. I had to sit cramped in a space about three feet in diameter, and wearily chip, chip, with heavy hammer and chisels from early morning until dark, day after day, for weeks and months. In the morning, father and David lowered me in a wooden bucket by a windlass, hauled up what chips were left from the night before, then went away to the farm work and left me until noon, when they hoisted me out for dinner. After dinner I was promptly lowered again, the

THE HICKORY HILL HOUSE, BUILT IN 1857

forenoon's accumulation of chips hoisted out of the way, and I was left until night.

One morning, after the dreary bore was about eighty feet deep, my life was all but lost in deadly choke-damp, — carbonic acid gas that had settled at the bottom during the night. Instead of clearing away the chips as usual when I was lowered to the bottom, I swayed back and forth and began to sink under the poison. Father, alarmed that I did not make any noise, shouted, "What's keeping you so still?" to which he got no reply. Just as I was settling down against the side of the wall, I happened to catch a glimpse of a branch of a bur-oak tree which leaned out over the mouth of the shaft. This suddenly awakened me, and to father's excited shouting I feebly murmured, "Take me out." But when he began to hoist he found I was not in the bucket and in wild alarm shouted, "Get in! Get in the bucket and hold on! Hold on!" Somehow I managed to get into the bucket, and that is all I remembered until I was dragged out, violently gasping for breath.

One of our near neighbors, a stone mason and miner by the name of William Duncan, came to see me, and after hearing the particulars of the accident he solemnly said: "Weel, Johnnie, it's God's mercy that you're alive. Many a companion of mine have I seen dead

with choke-damp, but none that I ever saw or heard of was so near to death in it as you were and escaped without help." Mr. Duncan taught father to throw water down the shaft to absorb the gas, and also to drop a bundle of brush or hay attached to a light rope, dropping it again and again to carry down pure air and stir up the poison. When, after a day or two, I had recovered from the shock, father lowered me again to my work, after taking the precaution to test the air with a candle and stir it up well with a brush-and-hay bundle. The weary hammer-and-chisel-chipping went on as before, only more slowly, until ninety feet down, when at last I struck a fine, hearty gush of water. Constant dropping wears away stone. So does constant chipping, while at the same time wearing away the chipper. Father never spent an hour in that well. He trusted me to sink it straight and plumb, and I did, and built a fine covered top over it, and swung two iron-bound buckets in it from which we all drank for many a day.

The honey-bee arrived in America long before we boys did, but several years passed ere we noticed any on our farm. The introduction of the honey-bee into flowery America formed a grand epoch in bee history. This sweet humming creature, companion and friend of the

flowers, is now distributed over the greater part of the continent, filling countless hollows in rocks and trees with honey as well as the millions of hives prepared for them by honey-farmers, who keep and tend their flocks of sweet winged cattle, as shepherds keep sheep, — a charming employment, "like directing sunbeams," as Thoreau says. The Indians call the honey-bee the white man's fly; and though they had long been acquainted with several species of bumblebees that yielded more or less honey, how gladly surprised they must have been when they discovered that, in the hollow trees where before they had found only coons or squirrels, they found swarms of brown flies with fifty or even a hundred pounds of honey sealed up in beautiful cells. With their keen hunting senses they of course were not slow to learn the habits of the little brown immigrants and the best methods of tracing them to their sweet homes, however well hidden. During the first few years none were seen on our farm, though we sometimes heard father's hired men talking about "lining bees." None of us boys ever found a bee tree, or tried to find any until about ten years after our arrival in the woods. On the Hickory Hill farm there is a ridge of moraine material, rather dry, but flowery with goldenrods and asters of

many species, upon which we saw bees feeding in the late autumn just when their hives were fullest of honey, and it occurred to me one day after I was of age and my own master that I must try to find a bee tree. I made a little box about six inches long and four inches deep and wide; bought half a pound of honey, went to the goldenrod hill, swept a bee into the box and closed it. The lid had a pane of glass in it so I could see when the bee had sucked its fill and was ready to go home. At first it groped around trying to get out, but, smelling the honey, it seemed to forget everything else, and while it was feasting I carried the box and a small sharp-pointed stake to an open spot, where I could see about me, fixed the stake in the ground, and placed the box on the flat top of it. When I thought that the little feaster must be about full, I opened the box, but it was in no hurry to fly. It slowly crawled up to the edge of the box, lingered a minute or two cleaning its legs that had become sticky with honey, and when it took wing, instead of making what is called a bee-line for home, it buzzed around the box and minutely examined it as if trying to fix a clear picture of it in its mind so as to be able to recognize it when it returned for another load, then circled around at a little distance as if looking for something to locate it by. I was

the nearest object, and the thoughtful worker buzzed in front of my face and took a good stare at me, and then flew up on to the top of an oak on the side of the open spot in the centre of which the honey-box was. Keeping a keen watch, after a minute or two of rest or wing-cleaning, I saw it fly in wide circles round the tops of the trees nearest the honey-box, and, after apparently satisfying itself, make a bee-line for the hive. Looking endwise on the line of flight, I saw that what is called a bee-line is not an absolutely straight line, but a line in general straight made of many slight, wavering, lateral curves. After taking as true a bearing as I could, I waited and watched. In a few minutes, probably ten, I was surprised to see that bee arrive at the end of the outleaning limb of the oak mentioned above, as though that was the first point it had fixed in its memory to be depended on in retracing the way back to the honey-box. From the tree-top it came straight to my head, thence straight to the box, entered without the least hesitation, filled up and started off after the same preparatory dressing and taking of bearings as before. Then I took particular pains to lay down the exact course so I would be able to trace it to the hive. Before doing so, however, I made an experiment to test the worth of the impression I had

that the little insect found the way back to the box by fixing telling points in its mind. While it was away, I picked up the honey-box and set it on the stake a few rods from the position it had thus far occupied, and stood there watching. In a few minutes I saw the bee arrive at its guide-mark, the overleaping branch on the tree-top, and thence come bouncing down right to the spaces in the air which had been occupied by my head and the honey-box, and when the cunning little honey-gleaner found nothing there but empty air it whirled round and round as if confused and lost; and although I was standing with the open honey-box within fifty or sixty feet of the former feasting-spot, it could not, or at least did not, find it.

Now that I had learned the general direction of the hive, I pushed on in search of it. I had gone perhaps a quarter of a mile when I caught another bee, which, after getting loaded, went through the same performance of circling round and round the honey-box, buzzing in front of me and staring me in the face to be able to recognize me; but as if the adjacent trees and bushes were sufficiently well known, it simply looked around at them and bolted off without much dressing, indicating, I thought, that the distance to the hive was not great. I followed on and very soon discovered it in the bottom

log of a corn-field fence, but some lucky fellow had discovered it before me and robbed it. The robbers had chopped a large hole in the log, taken out most of the honey, and left the poor bees late in the fall, when winter was approaching, to make haste to gather all the honey they could from the latest flowers to avoid starvation in the winter.

CHAPTER VII

KNOWLEDGE AND INVENTIONS

I LEARNED arithmetic in Scotland without understanding any of it, though I had the rules by heart. But when I was about fifteen or sixteen years of age, I began to grow hungry for real knowledge, and persuaded father, who was willing enough to have me study provided my farm work was kept up, to buy me a higher arithmetic. Beginning at the beginning, in one summer I easily finished it without assistance, in the short intervals between the end of dinner and the afternoon start for the harvest- and hay-fields, accomplishing more without a teacher in a few scraps of time than in years in school before my mind was ready for such work. Then in succession I took up algebra, geometry, and trigonometry and made some little progress in each, and reviewed grammar. I was fond of reading, but father had brought only a few religious books from Scotland. Fortunately, several of our neighbors had brought a dozen or two of all sorts of books, which I borrowed and read, keeping all of them except the religious ones carefully hidden from father's eye. Among these were Scott's novels, which,

'like all other novels, were strictly forbidden, but devoured with glorious pleasure in secret. Father was easily persuaded to buy Josephus's "Wars of the Jews," and D'Aubigné's "History of the Reformation," and I tried hard to get him to buy Plutarch's Lives, which, as I told him, everybody, even religious people, praised as a grand good book; but he would have nothing to do with the old pagan until the graham bread and anti-flesh doctrines came suddenly into our backwoods neighborhood, making a stir something like phrenology and spirit-rappings, which were as mysterious in their attacks as influenza. He then thought it possible that Plutarch might be turned to account on the food question by revealing what those old Greeks and Romans ate to make them strong; and so at last we gained our glorious Plutarch. Dick's "Christian Philosopher," which I borrowed from a neighbor, I thought I might venture to read in the open, trusting that the word "Christian" would be proof against its cautious condemnation. But father balked at the word "Philosopher," and quoted from the Bible a verse which spoke of "philosophy falsely so-called." I then ventured to speak in defense of the book, arguing that we could not do without at least a little of the most useful kinds of philosophy.

"Yes, we can," he said with enthusiasm, "the Bible is the only book human beings can possibly require throughout all the journey from earth to heaven."

"But how," I contended, "can we find the way to heaven without the Bible, and how after we grow old can we read the Bible without a little helpful science? Just think, father, you cannot read your Bible without spectacles, and millions of others are in the same fix; and spectacles cannot be made without some knowledge of the science of optics."

"Oh!" he replied, perceiving the drift of the argument, "there will always be plenty of worldly people to make spectacles."

To this I stubbornly replied with a quotation from the Bible with reference to the time coming when "all shall know the Lord from the least even to the greatest," and then who will make the spectacles? But he still objected to my reading that book, called me a contumacious quibbler too fond of disputation, and ordered me to return it to the accommodating owner. I managed, however, to read it later.

On the food question father insisted that those who argued for a vegetable diet were in the right, because our teeth showed plainly that they were made with reference to fruit and grain and not for flesh like those of dogs

and wolves and tigers. He therefore promptly adopted a vegetable diet and requested mother to make the bread from graham flour instead of bolted flour. Mother put both kinds on the table, and meat also, to let all the family take their choice, and while father was insisting on the foolishness of eating flesh, I came to her help by calling father's attention to the passage in the Bible which told the story of Elijah the prophet who, when he was pursued by enemies who wanted to take his life, was hidden by the Lord by the brook Cherith, and fed by ravens; and surely the Lord knew what was good to eat, whether bread or meat. And on what, I asked, did the Lord feed Elijah? On vegetables or graham bread? No, he directed the ravens to feed his prophet on flesh. The Bible being the sole rule, father at once acknowledged that he was mistaken. The Lord never would have sent flesh to Elijah by the ravens if graham bread were better.

I remember as a great and sudden discovery that the poetry of the Bible, Shakespeare, and Milton was a source of inspiring, exhilarating, uplifting pleasure; and I became anxious to know all the poets, and saved up small sums to buy as many of their books as possible. Within three or four years I was the proud possessor of parts of Shakespeare's, Milton's, Cowper's,

Henry Kirke White's, Campbell's, and Akenside's works, and quite a number of others seldom read nowadays. I think it was in my fifteenth year that I began to relish good literature with enthusiasm, and smack my lips over favorite lines, but there was desperately little time for reading, even in the winter evenings — only a few stolen minutes now and then. Father's strict rule was, straight to bed immediately after family worship, which in winter was usually over by eight o'clock. I was in the habit of lingering in the kitchen with a book and candle after the rest of the family had retired, and considered myself fortunate if I got five minutes' reading before father noticed the light and ordered me to bed; an order that of course I immediately obeyed. But night after night I tried to steal minutes in the same lingering way, and how keenly precious those minutes were, few nowadays can know. Father failed perhaps two or three times in a whole winter to notice my light for nearly ten minutes, magnificent golden blocks of time, long to be remembered like holidays or geological periods. One evening when I was reading Church history father was particularly irritable, and called out with hope-killing emphasis, "*John, go to bed!* Must I give you a separate order every night to get you to go to bed? Now,

I will have no irregularity in the family; you *must* go when the rest go, and without my having to tell you." Then, as an afterthought, as if judging that his words and tone of voice were too severe for so pardonable an offense as reading a religious book, he unwarily added: "If you *will* read, get up in the morning and read. You may get up in the morning as early as you like."

That night I went to bed wishing with all my heart and soul that somebody or something might call me out of sleep to avail myself of this wonderful indulgence; and next morning to my joyful surprise I awoke before father called me. A boy sleeps soundly after working all day in the snowy woods, but that frosty morning I sprang out of bed as if called by a trumpet blast, rushed downstairs, scarce feeling my chilblains, enormously eager to see how much time I had won; and when I held up my candle to a little clock that stood on a bracket in the kitchen I found that it was only one o'clock. I had gained five hours, almost half a day! "Five hours to myself!" I said, "five huge, solid hours!" I can hardly think of any other event in my life, any discovery I ever made that gave birth to joy so transportingly glorious as the possession of these five frosty hours.

In the glad, tumultuous excitement of so much suddenly acquired time-wealth, I hardly knew what to do with it. I first thought of going on with my reading, but the zero weather would make a fire necessary, and it occurred to me that father might object to the cost of fire-wood that took time to chop. Therefore, I prudently decided to go down cellar, and begin work on a model of a self-setting sawmill I had invented. Next morning I managed to get up at the same gloriously early hour, and though the temperature of the cellar was a little below the freezing point, and my light was only a tallow candle, the mill work went joyfully on. There were a few tools in a corner of the cellar — a vise, files, a hammer, chisels, etc., that father had brought from Scotland, but no saw excepting a coarse crooked one that was unfit for sawing dry hickory or oak. So I made a fine-tooth saw suitable for my work out of a strip of steel that had formed part of an old-fashioned corset, that cut the hardest wood smoothly. I also made my own bradawls, punches, and a pair of compasses, out of wire and old files.

My workshop was immediately under father's bed, and the filing and tapping in making cogwheels, journals, cams, etc., must, no doubt, have annoyed him, but with the permission he

had granted in his mind, and doubtless hoping that I would soon tire of getting up at one o'clock, he impatiently waited about two weeks before saying a word. I did not vary more than five minutes from one o'clock all winter, nor did I feel any bad effects whatever, nor did I think at all about the subject as to whether so little sleep might be in any way injurious; it was a grand triumph of will-power over cold and common comfort and work-weariness in abruptly cutting down my ten hours' allowance of sleep to five. I simply felt that I was rich beyond anything I could have dreamed of or hoped for. I was far more than happy. Like Tam o'Shanter I was glorious, "O'er a' the ills o' life victorious."

Father, as was customary in Scotland, gave thanks and asked a blessing before meals, not merely as a matter of form and decent Christian manners, for he regarded food as a gift derived directly from the hands of the Father in heaven. Therefore every meal to him was a sacrament requiring conduct and attitude of mind not unlike that befitting the Lord's Supper. No idle word was allowed to be spoken at our table, much less any laughing or fun or story-telling. When we were at the breakfast-table, about two weeks after the great golden time-discovery, father cleared his throat pre-

liminary, as we all knew, to saying something considered important. I feared that it was to be on the subject of my early rising, and dreaded the withdrawal of the permission he had granted on account of the noise I made, but still hoping that, as he had given his word that I might get up as early as I wished, he would as a Scotchman stand to it, even though it was given in an unguarded moment and taken in a sense unreasonably far-reaching. The solemn sacramental silence was broken by the dreaded question: —

"John, what time is it when you get up in the morning?"

"About one o'clock," I replied in a low, meek, guilty tone of voice.

"And what kind of a time is that, getting up in the middle of the night and disturbing the whole family?"

I simply reminded him of the permission he had freely granted me to get up as early as I wished.

"I *know* it," he said, in an almost agonized tone of voice, "I *know* I gave you that miserable permission, but I never imagined that you would get up in the middle of the night."

To this I cautiously made no reply, but continued to listen for the heavenly one-o'clock call, and it never failed.

After completing my self-setting sawmill I dammed one of the streams in the meadow and put the mill in operation. This invention was speedily followed by a lot of others — water-wheels, curious doorlocks and latches, thermometers, hygrometers, pyrometers, clocks, a barometer, an automatic contrivance for feeding the horses at any required hour, a lamp-lighter and fire-lighter, an early-or-late-rising machine, and so forth.

After the sawmill was proved and discharged from my mind, I happened to think it would be a fine thing to make a timekeeper which would tell the day of the week and the day of the month, as well as strike like a common clock and point out the hours; also to have an attachment whereby it could be connected with a bedstead to set me on my feet at any hour in the morning; also to start fires, light lamps, etc. I had learned the time laws of the pendulum from a book, but with this exception I knew nothing of timekeepers, for I had never seen the inside of any sort of clock or watch. After long brooding, the novel clock was at length completed in my mind, and was tried and found to be durable and to work well and look well before I had begun to build it in wood. I carried small parts of it in my pocket to whittle at when I was out at work on the farm,

using every spare or stolen moment within reach without father's knowing anything about it. In the middle of summer, when harvesting was in progress, the novel time-machine was nearly completed. It was hidden upstairs in a spare bedroom where some tools were kept. I did the making and mending on the farm, but one day at noon, when I happened to be away, father went upstairs for a hammer or something and discovered the mysterious machine back of the bedstead. My sister Margaret saw him on his knees examining it, and at the first opportunity whispered in my ear, "John, faythe saw that thing you're making upstairs." None of the family knew what I was doing, but they knew very well that all such work was frowned on by father, and kindly warned me of any danger that threatened my plans. The fine invention seemed doomed to destruction before its time-ticking commenced, though I thought it handsome, had so long carried it in my mind, and like the nest of Burns's wee mousie it had cost me mony a weary whittling nibble. When we were at dinner several days after the sad discovery, father began to clear his throat to speak, and I feared the doom of martyrdom was about to be pronounced on my grand clock.

"John," he inquired, "what is that thing you are making upstairs?"

I replied in desperation that I did n't know what to call it.

"What! You mean to say you don't know what you are trying to do?"

"Oh, yes," I said, "I know very well what I am doing."

"What, then, is the thing for?"

"It's for a lot of things," I replied, "but getting people up early in the morning is one of the main things it is intended for; therefore it might perhaps be called an early-rising machine."

After getting up so extravagantly early all the last memorable winter, to make a machine for getting up perhaps still earlier seemed so ridiculous that he very nearly laughed. But after controlling himself and getting command of a sufficiently solemn face and voice he said severely, "Do you not think it is very wrong to waste your time on such nonsense?"

"No," I said meekly, "I don't think I'm doing any wrong."

"Well," he replied, "I assure you I do; and if you were only half as zealous in the study of religion as you are in contriving and whittling these useless, nonsensical things, it would be infinitely better for you. I want you to be like Paul, who said that he desired to know nothing among men but Christ and Him crucified."

To this I made no reply, gloomily believing

my fine machine was to be burned, but still taking what comfort I could in realizing that anyhow I had enjoyed inventing and making it.

After a few days, finding that nothing more was to be said, and that father after all had not had the heart to destroy it, all necessity for secrecy being ended, I finished it in the half-hours that we had at noon and set it in the parlor between two chairs, hung moraine boulders that had come from the direction of Lake Superior on it for weights, and set it running. We were then hauling grain into the barn. Father at this period devoted himself entirely to the Bible and did no farm work whatever. The clock had a good loud tick, and when he heard it strike, one of my sisters told me that he left his study, went to the parlor, got down on his knees and carefully examined the machinery, which was all in plain sight, not being enclosed in a case. This he did repeatedly, and evidently seemed a little proud of my ability to invent and whittle such a thing, though careful to give no encouragement for anything more of the kind in future.

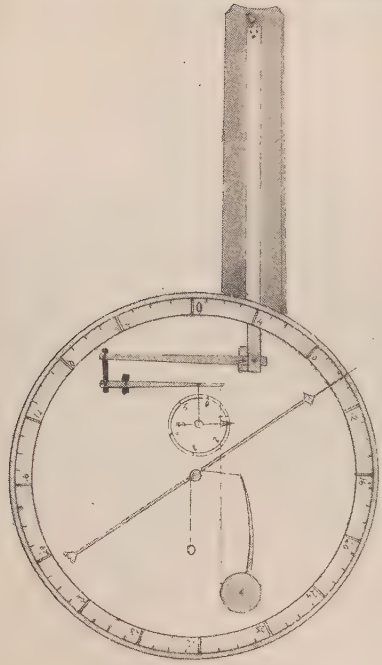
But somehow it seemed impossible to stop. Inventing and whittling faster than ever, I made another hickory clock, shaped like a scythe to symbolize the scythe of Father Time. The pendulum is a bunch of arrows symbolizing

the flight of time. It hangs on a leafless mossy oak snag showing the effect of time, and on the snath is written, "All flesh is grass." This, especially the inscription, rather pleased father, and, of course, mother and all my sisters and brothers admired it. Like the first it indicates the days of the week and month, starts fires and beds at any given hour and minute, and, though made more than fifty years ago, is still a good timekeeper.

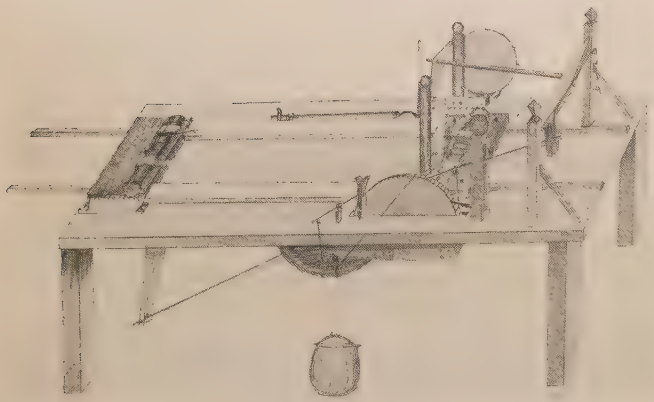
My mind still running on clocks, I invented a big one like a town clock with four dials, with the time-figures so large they could be read by all our immediate neighbors as well as ourselves when at work in the fields, and on the side next the house the days of the week and month were indicated. It was to be placed on the peak of the barn roof. But just as it was all but finished, father stopped me, saying that it would bring too many people around the barn. I then asked permission to put it on the top of a black-oak tree near the house. Studying the larger main branches, I thought I could secure a sufficiently rigid foundation for it, while the trimmed sprays and leaves would conceal the angles of the cabin required to shelter the works from the weather, and the two-second pendulum, fourteen feet long, could be snugly encased on the side of the trunk. Nothing about the

grand, useful timekeeper, I argued, would disfigure the tree, for it would look something like a big hawk's nest. "But that," he objected, "would draw still bigger bothersome trampling crowds about the place, for who ever heard of anything so queer as a big clock on the top of a tree?" So I had to lay aside its big wheels and cams and rest content with the pleasure of inventing it, and looking at it in my mind and listening to the deep solemn throbbing of its long two-second pendulum with its two old axes back to back for the bob.

One of my inventions was a large thermometer made of an iron rod, about three feet long and five eighths of an inch in diameter, that had formed part of a wagon-box. The expansion and contraction of this rod was multiplied by a series of levers made of strips of hoop iron. The pressure of the rod against the levers was kept constant by a small counterweight, so that the slightest change in the length of the rod was instantly shown on a dial about three feet wide multiplied about thirty-two thousand times. The zero-point was gained by packing the rod in wet snow. The scale was so large that the big black hand on the white-painted dial could be seen distinctly and the temperature read while we were ploughing in the field below the house. The extremes of heat and cold



THERMOMETER



SELF-SETTING SAWMILL
Model built in cellar

caused the hand to make several revolutions. The number of these revolutions was indicated on a small dial marked on the larger one. This thermometer was fastened on the side of the house, and was so sensitive that when any one approached it within four or five feet the heat radiated from the observer's body caused the hand of the dial to move so fast that the motion was plainly visible, and when he stepped back, the hand moved slowly back to its normal position. It was regarded as a great wonder by the neighbors and even by my own all-Bible father.

Boys are fond of the books of travelers, and I remember that one day, after I had been reading Mungo Park's travels in Africa, mother said: "Weel, John, maybe you will travel like Park and Humboldt some day." Father overheard her and cried out in solemn deprecation, "Oh, Anne! dinna put sic notions in the laddie's heed." But at this time there was precious little need of such prayers. My brothers left the farm when they came of age, but I stayed a year longer, loath to leave home. Mother hoped I might be a minister some day; my sisters that I would be a great inventor. I often thought I should like to be a physician, but I saw no way of making money and getting the necessary education, excepting as an inventor. So, as a beginning, I decided to try to get into

a big shop or factory and live awhile among machines. But I was naturally extremely shy and had been taught to have a poor opinion of myself, as of no account, though all our neighbors encouragingly called me a genius, sure to rise in the world. When I was talking over plans one day with a friendly neighbor, he said: "Now, John, if you wish to get into a machine-shop, just take some of your inventions to the State Fair, and you may be sure that as soon as they are seen they will open the door of any shop in the country for you. You will be welcomed everywhere." And when I doubtingly asked if people would care to look at things made of wood, he said, "Made of wood! Made of wood! What does it matter what they're made of when they are so out-and-out original. There's nothing else like them in the world. That is what will attract attention, and besides they're mighty handsome things anyway to come from the backwoods." So I was encouraged to leave home and go at his direction to the State Fair when it was being held in Madison.

CHAPTER VIII

THE WORLD AND THE UNIVERSITY

When I told father that I was about to leave home, and inquired whether, if I should happen to be in need of money, he would send me a little, he said, "No; depend entirely on yourself." Good advice, I suppose, but surely needlessly severe for a bashful, home-loving boy who had worked so hard. I had the gold sovereign that my grandfather had given me when I left Scotland, and a few dollars, perhaps ten, that I had made by raising a few bushels of grain on a little patch of sandy abandoned ground. So when I left home to try the world I had only about fifteen dollars in my pocket.

Strange to say, father carefully taught us to consider ourselves very poor worms of the dust, conceived in sin, etc., and devoutly believed that quenching every spark of pride and self-confidence was a sacred duty, without realizing that in so doing he might at the same time be quenching everything else. Praise he considered most venomous, and tried to assure me that when I was fairly out in the wicked world making my own way I would soon learn that although I might have thought him a hard

taskmaster at times, strangers were far harder. On the contrary, I found no lack of kindness and sympathy. All the baggage I carried was a package made up of the two clocks and a small thermometer made of a piece of old washboard, all three tied together, with no covering or case of any sort, the whole looking like one very complicated machine.

The aching parting from mother and my sisters was, of course, hard to bear. Father let David drive me down to Pardeeville, a place I had never before seen, though it was only nine miles south of the Hickory Hill home. When we arrived at the village tavern, it seemed deserted. Not a single person was in sight. I set my clock baggage on the rickety platform. David said good-bye and started for home, leaving me alone in the world. The grinding noise made by the wagon in turning short brought out the landlord, and the first thing that caught his eye was my strange bundle. Then he looked at me and said, "Hello, young man, what's this?"

"Machines," I said, "for keeping time and getting up in the morning, and so forth."

"Well! Well! That's a mighty queer get-up. You must be a Down-East Yankee. Where did you get the pattern for such a thing?"

"In my head," I said.

Some one down the street happened to notice the landlord looking intently at something and came up to see what it was. Three or four people in that little village formed an attractive crowd, and in fifteen or twenty minutes the greater part of the population of Pardeeville stood gazing in a circle around my strange hickory belongings. I kept outside of the circle to avoid being seen, and had the advantage of hearing the remarks without being embarrassed. Almost every one as he came up would say, "What's that? What's it for? Who made it?" The landlord would answer them all alike, "Why, a young man that lives out in the country somewhere made it, and he says it's a thing for keeping time, getting up in the morning, and something that I did n't understand. I don't know what he meant." "Oh, no!" one of the crowd would say, "that can't be. It's for something else — something mysterious. Mark my words, you'll see all about it in the newspapers some of these days." A curious little fellow came running up the street, joined the crowd, stood on tiptoe to get sight of the wonder, quickly made up his mind, and shouted in crisp, confident, cock-crowing style, "I know what that contraption's for. It's a machine for taking the bones out of fish."

This was in the time of the great popular

phrenology craze, when the fences and barns along the roads throughout the country were plastered with big skull-bump posters, headed, "Know Thyself," and advising everybody to attend schoolhouse lectures to have their heads explained and be told what they were good for and whom they ought to marry. My mechanical bundle seemed to bring a good deal of this phrenology to mind, for many of the onlookers would say, "I wish I could see that boy's head, — he must have a tremendous bump of invention." Others complimented me by saying, "I wish I had that fellow's head. I'd rather have it than the best farm in the State."

I stayed overnight at this little tavern, waiting for a train. In the morning I went to the station, and set my bundle on the platform. Along came the thundering train, a glorious sight, the first train I had ever waited for. When the conductor saw my queer baggage, he cried, "Hello! What have we here?"

"Inventions for keeping time, early rising, and so forth. May I take them into the car with me?"

"You can take them where you like," he replied, "but you had better give them to the baggage-master. If you take them into the car they will draw a crowd and might get broken."

So I gave them to the baggage-master and made haste to ask the conductor whether I might ride on the engine. He good-naturedly said: "Yes, it's the right place for you. Run ahead, and tell the engineer what I say." But the engineer bluntly refused to let me on, saying: "It don't matter what the conductor told you. *I* say you can't ride on my engine."

By this time the conductor, standing ready to start his train, was watching to see what luck I had, and when he saw me returning came ahead to meet me.

"The engineer won't let me on," I reported.

"Won't he?" said the kind conductor. "Oh! I guess he will. You come down with me." And so he actually took the time and patience to walk the length of that long train to get me on to the engine.

"Charlie," said he, addressing the engineer, "don't you ever take a passenger?"

"Very seldom," he replied.

"Anyhow, I wish you would take this young man on. He has the strangest machines in the baggage-car I ever saw in my life. I believe he could make a locomotive. He wants to see the engine running. Let him on." Then in a low whisper he told me to jump on, which I did gladly, the engineer offering neither encouragement nor objection.

As soon as the train was started, the engineer asked what the "strange thing" the conductor spoke of really was.

"Only inventions for keeping time, getting folk up in the morning, and so forth," I hastily replied, and before he could ask any more questions I asked permission to go outside of the cab to see the machinery. This he kindly granted, adding, "Be careful not to fall off, and when you hear me whistling for a station you come back, because if it is reported against me to the superintendent that I allow boys to run all over my engine I might lose my job."

Assuring him that I would come back promptly, I went out and walked along the foot-board on the side of the boiler, watching the magnificent machine rushing through the landscapes as if glorying in its strength like a living creature. While seated on the cow-catcher platform, I seemed to be fairly flying, and the wonderful display of power and motion was enchanting. This was the first time I had ever been on a train, much less a locomotive, since I had left Scotland. When I got to Madison, I thanked the kind conductor and engineer for my glorious ride, inquired the way to the Fair, shouldered my inventions, and walked to the Fair Ground.

When I applied for an admission ticket at a

'window by the gate I told the agent that I had something to exhibit.

"What is it?" he inquired.

"Well, here it is. Look at it."

When he craned his neck through the window and got a glimpse of my bundle, he cried excitedly, "Oh! *you* don't need a ticket — come right in."

When I inquired of the agent where such things as mine should be exhibited, he said, "You see that building up on the hill with a big flag on it? That 's the Fine Arts Hall, and it's just the place for your wonderful invention."

So I went up to the Fine Arts Hall and looked in, wondering if they would allow wooden things in so fine a place.

I was met at the door by a dignified gentleman, who greeted me kindly and said, "Young man, what have we got here?"

"Two clocks and a thermometer," I replied.

"Did you make these? They look wonderfully beautiful and novel and must, I think, prove the most interesting feature of the fair."

"Where shall I place them?" I inquired.

"Just look around, young man, and choose the place you like best, whether it is occupied or not. You can have your pick of all the building, and a carpenter to make the necessary shelving and assist you every way possible!"

So I quickly had a shelf made large enough for all of them, went out on the hill and picked up some glacial boulders of the right size for weights, and in fifteen or twenty minutes the clocks were running. They seemed to attract more attention than anything else in the hall. I got lots of praise from the crowd and the newspaper reporters. The local press reports were copied into the Eastern papers. It was considered wonderful that a boy on a farm had been able to invent and make such things, and almost every spectator foretold good fortune. But I had been so lectured by my father above all things to avoid praise that I was afraid to read those kind newspaper notices, and never clipped out or preserved any of them, just glanced at them and turned away my eyes from beholding vanity. They gave me a prize of ten or fifteen dollars and a diploma for wonderful things not down in the list of exhibits.

Many years later, after I had written articles and books, I received a letter from the gentleman who had charge of the Fine Arts Hall. He proved to be the Professor of English Literature in the University of Wisconsin at this Fair time, and long afterward he sent me clippings of reports of his lectures. He had a lecture on me, discussing style, etcetera, and telling how well he remembered my arrival at

the Hall in my shirt-sleeves with those mechanical wonders on my shoulder, and so forth, and so forth. These inventions, though of little importance, opened all doors for me and made marks that have lasted many years, simply, I suppose, because they were original and promising.

I was looking around in the mean time to find out where I should go to seek my fortune. An inventor at the Fair, by the name of Wiard, was exhibiting an iceboat he had invented to run on the upper Mississippi from Prairie du Chien to St. Paul during the winter months, explaining how useful it would be thus to make a highway of the river while it was closed to ordinary navigation by ice. After he saw my inventions he offered me a place in his foundry and machine-shop in Prairie du Chien and promised to assist me all he could. So I made up my mind to accept his offer and rode with him to Prairie du Chien in his iceboat, which was mounted on a flat car. I soon found, however, that he was seldom at home and that I was not likely to learn much at his small shop. I found a place where I could work for my board and devote my spare hours to mechanical drawing, geometry, and physics, making but little headway, however, although the Pelton family, for whom I worked, were very kind.

I made up my mind after a few months' stay in Prairie du Chien to return to Madison, hoping that in some way I might be able to gain an education.

At Madison I raised a few dollars by making and selling a few of those bedsteads that set the sleepers on their feet in the morning, — inserting in the footboard the works of an ordinary clock that could be bought for a dollar. I also made a few dollars addressing circulars in an insurance office, while at the same time I was paying my board by taking care of a pair of horses and going errands. This is of no great interest except that I was thus winning my bread while hoping that something would turn up that might enable me to make money enough to enter the State University. This was my ambition, and it never wavered no matter what I was doing. No University, it seemed to me, could be more admirably situated, and as I sauntered about it, charmed with its fine lawns and trees and beautiful lakes, and saw the students going and coming with their books, and occasionally practicing with a theodolite in measuring distances, I thought that if I could only join them it would be the greatest joy of life. I was desperately hungry and thirsty for knowledge and willing to endure anything to get it.

One day I chanced to meet a student who had noticed my inventions at the Fair and now recognized me. And when I said, "You are fortunate fellows to be allowed to study in this beautiful place. I wish I could join you." "Well, why don't you?" he asked. "I have n't money enough," I said. "Oh, as to money," he reassuringly explained, "very little is required. I presume you're able to enter the Freshman class, and you can board yourself as quite a number of us do at a cost of about a dollar a week. The baker and milkman come every day. You can live on bread and milk." Well, I thought, maybe I have money enough for at least one beginning term. Anyhow I could n't help trying.

With fear and trembling, overladen with ignorance, I called on Professor Stirling, the Dean of the Faculty, who was then Acting President, presented my case, and told him how far I had got on with my studies at home, and that I had n't been to school since leaving Scotland at the age of eleven years, excepting one short term of a couple of months at a district school, because I could not be spared from the farm work. After hearing my story, the kind professor welcomed me to the glorious University — next, it seemed to me, to the Kingdom of Heaven. After a few weeks in the

preparatory department I entered the Freshman class. In Latin I found that one of the books in use I had already studied in Scotland. So, after an interruption of a dozen years, I began my Latin over again where I had left off; and, strange to say, most of it came back to me, especially the grammar which I had committed to memory at the Dunbar Grammar School.

During the four years that I was in the University, I earned enough in the harvest-fields during the long summer vacations to carry me through the balance of each year, working very hard, cutting with a cradle four acres of wheat a day, and helping to put it in the shock. But, having to buy books and paying, I think, thirty-two dollars a year for instruction, and occasionally buying acids and retorts, glass tubing, bell-glasses, flasks, etc., I had to cut down expenses for board now and then to half a dollar a week.

One winter I taught school ten miles north of Madison, earning much-needed money at the rate of twenty dollars a month, "boarding round," and keeping up my University work by studying at night. As I was not then well enough off to own a watch, I used one of my hickory clocks, not only for keeping time, but for starting the school fire in the cold mornings,

and regulating class-times. I carried it out on my shoulder to the old log schoolhouse, and set it to work on a little shelf nailed to one of the knotty, bulging logs. The winter was very cold, and I had to go to the schoolhouse and start the fire about eight o'clock to warm it before the arrival of the scholars. This was a rather trying job, and one that my clock might easily be made to do. Therefore, after supper one evening I told the head of the family with whom I was boarding that if he would give me a candle I would go back to the schoolhouse and make arrangements for lighting the fire at eight o'clock, without my having to be present until time to open the school at nine. He said, "Oh, young man, you have some curious things in the school-room, but I don't think you can do that." I said, "Oh, yes! It's easy," and in hardly more than an hour the simple job was completed. I had only to place a teaspoonful of powdered chlorate of potash and sugar on the stove-hearth near a few shavings and kindling, and at the required time make the clock, through a simple arrangement, touch the inflammable mixture with a drop of sulphuric acid. Every evening after school was dismissed, I shoveled out what was left of the fire into the snow, put in a little kindling, filled up the big box stove with heavy oak wood,

placed the lighting arrangement on the hearth, and set the clock to drop the acid at the hour of eight; all this requiring only a few minutes.

The first morning after I had made this simple arrangement I invited the doubting farmer to watch the old squat schoolhouse from a window that overlooked it, to see if a good smoke did not rise from the stovepipe. Sure enough, on the minute, he saw a tall column curling gracefully up through the frosty air, but instead of congratulating me on my success he solemnly shook his head and said in a hollow, lugubrious voice, "Young man, you will be setting fire to the schoolhouse." All winter long that faithful clock fire never failed, and by the time I got to the schoolhouse the stove was usually red-hot.

At the beginning of the long summer vacations I returned to the Hickory Hill farm to earn the means in the harvest-fields to continue my University course, walking all the way to save railroad fares. And although I cradled four acres of wheat a day, I made the long, hard, sweaty day's work still longer and harder by keeping up my study of plants. At the noon hour I collected a large handful, put them in water to keep them fresh, and after supper got to work on them and sat up till after midnight, analyzing and classifying, thus leaving

only four hours for sleep; and by the end of the first year, after taking up botany, I knew the principal flowering plants of the region.

I received my first lesson in botany from a student by the name of Griswold, who is now County Judge of the County of Waukesha, Wisconsin. In the University he was often laughed at on account of his anxiety to instruct others, and his frequently saying with fine emphasis, "Imparting instruction is my greatest enjoyment." One memorable day in June, when I was standing on the stone steps of the north dormitory, Mr. Griswold joined me and at once began to teach. He reached up, plucked a flower from an overspreading branch of a locust tree, and, handing it to me, said, "Muir, do you know what family this tree belongs to?"

"No," I said, "I don't know anything about botany."

"Well, no matter," said he, "what is it like?"

"It's like a pea flower," I replied.

"That's right. You're right," he said, "it belongs to the Pea Family."

"But how can that be," I objected, "when the pea is a weak, clinging, straggling herb, and the locust a big, thorny hardwood tree?"

"Yes, that is true," he replied, "as to the difference in size, but it is also true that in all their essential characters they are alike, and

therefore they must belong to one and the same family. Just look at the peculiar form of the locust flower; you see that the upper petal, called the banner, is broad and erect, and so is the upper petal of the pea flower; the two lower petals, called the wings, are outspread and wing-shaped; so are those of the pea; and the two petals below the wings are united on their edges, curve upward, and form what is called the keel, and so you see are the corresponding petals of the pea flower. And now look at the stamens and pistils. You see that nine of the ten stamens have their filaments united into a sheath around the pistil, but the tenth stamen has its filament free. These are very marked characters, are they not? And, strange to say, you will find them the same in the tree and in the vine. Now look at the ovules or seeds of the locust, and you will see that they are arranged in a pod or legume like those of the pea. And look at the leaves. You see the leaf of the locust is made up of several leaflets, and so also is the leaf of the pea. Now taste the locust leaf."

I did so and found that it tasted like the leaf of the pea. Nature has used the same seasoning for both, though one is a straggling vine, the other a big tree.

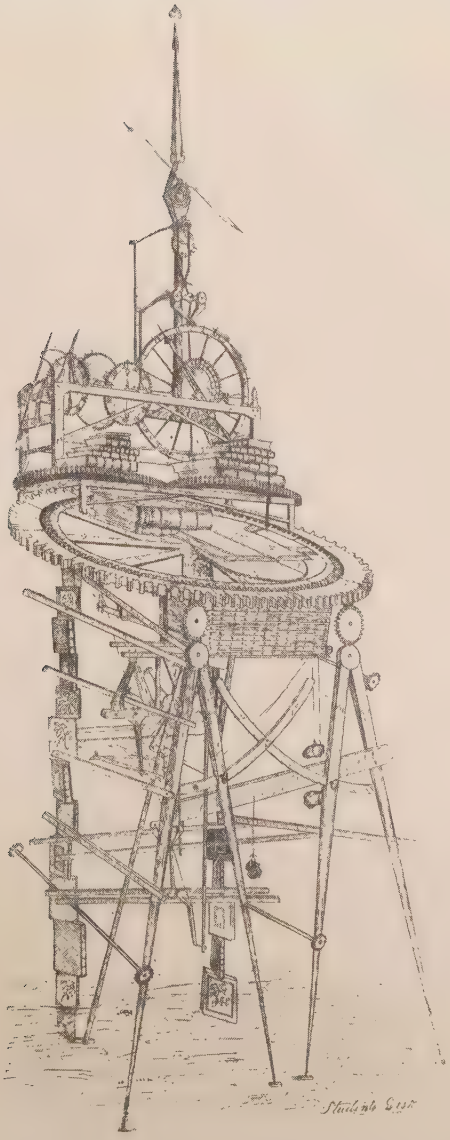
"Now, surely you cannot imagine that all

these similar characters are mere coincidences. Do they not rather go to show that the Creator in making the pea vine and locust tree had the same idea in mind, and that plants are not classified arbitrarily? Man has nothing to do with their classification. Nature has attended to all that, giving essential unity with boundless variety, so that the botanist has only to examine plants to learn the harmony of their relations."

This fine lesson charmed me and sent me flying to the woods and meadows in wild enthusiasm. Like everybody else I was always fond of flowers, attracted by their external beauty and purity. Now my eyes were opened to their inner beauty, all alike revealing glorious traces of the thoughts of God, and leading on and on into the infinite cosmos. I wandered away at every opportunity, making long excursions round the lakes, gathering specimens and keeping them fresh in a bucket in my room to study at night after my regular class tasks were learned; for my eyes never closed on the plant glory I had seen.

Nevertheless, I still indulged my love of mechanical inventions. I invented a desk in which the books I had to study were arranged in order at the beginning of each term. I also made a bed which set me on my feet every

morning at the hour determined on, and in dark winter mornings just as the bed set me on the floor it lighted a lamp. Then, after the minutes allowed for dressing had elapsed, a click was heard and the first book to be studied was pushed up from a rack below the top of the desk, thrown open, and allowed to remain there the number of minutes required. Then the machinery closed the book and allowed it to drop back into its stall, then moved the rack forward and threw up the next in order, and so on, all the day being divided according to the times of recitation, and time required and allotted to each study. Besides this, I thought it would be a fine thing in the summer-time when the sun rose early, to dispense with the clock-controlled bed machinery, and make use of sunbeams instead. This I did simply by taking a lens out of my small spy-glass, fixing it on a frame on the sill of my bedroom window, and pointing it to the sunrise; the sunbeams focused on a thread burned it through, allowing the bed machinery to put me on my feet. When I wished to arise at any given time after sunrise, I had only to turn the pivoted frame that held the lens the requisite number of degrees or minutes. Thus I took Emerson's advice and hitched my dumping-wagon bed to a star.



MY DESK
Made and used at the Wisconsin
State University

I also invented a machine to make visible the growth of plants and the action of the sunlight, a very delicate contrivance, enclosed in glass. Besides this I invented a barometer and a lot of novel scientific apparatus. My room was regarded as a sort of show place by the professors, who oftentimes brought visitors to it on Saturdays and holidays. And when, some eighteen years after I had left the University, I was sauntering over the campus in time of vacation, and spoke to a man who seemed to be taking some charge of the grounds, he informed me that he was the janitor; and when I inquired what had become of Pat, the janitor in my time, and a favorite with the students, he replied that Pat was still alive and well, but now too old to do much work. And when I pointed to the dormitory room that I long ago occupied, he said: "Oh! then I know who you are," and mentioned my name. "How comes it that you know my name?" I inquired. He explained that "Pat always pointed out that room to newcomers and told long stories about the wonders that used to be in it." So long had the memory of my little inventions survived.

Although I was four years at the University, I did not take the regular course of studies, but instead picked out what I thought would

be most useful to me, particularly chemistry, which opened a new world, and mathematics and physics, a little Greek and Latin, botany and geology. I was far from satisfied with what I had learned, and should have stayed longer. Anyhow I wandered away on a glorious botanical and geological excursion, which has lasted nearly fifty years and is not yet completed, always happy and free, poor and rich, without thought of a diploma or of making a name, urged on and on through endless, inspiring, Godful beauty.

From the top of a hill on the north side of Lake Mendota I gained a last wistful, lingering view of the beautiful University grounds and buildings where I had spent so many hungry and happy and hopeful days. There with streaming eyes I bade my blessed Alma Mater farewell. But I was only leaving one University for another, the Wisconsin University for the University of the Wilderness.

A THOUSAND-MILE WALK TO THE GULF

INTRODUCTION

"John Muir, Earth-planet, Universe." These words are written on the inside cover of the notebook from which the contents of this volume have been taken. They reflect the mood in which the late author and explorer undertook his thousand-mile walk to the Gulf of Mexico a half-century ago. No less does this refreshingly cosmopolitan address, which might have startled any finder of the book, reveal the temper and the comprehensiveness of Mr. Muir's mind. He never was and never could be a parochial student of nature. Even at the early age of twenty-nine his eager interest in every aspect of the natural world had made him a citizen of the universe.

While this was by far the longest botanical excursion which Mr. Muir made in his earlier years, it was by no means the only one. He had botanized around the Great Lakes, in Ontario, and through parts of Wisconsin, Indiana, and Illinois. On these expeditions he had disciplined himself to endure hardship, for his notebooks disclose the fact that he often went hungry and slept in the woods, or on the open prairies, with no cover except the clothes he wore.

"Oftentimes," he writes in some unpublished biographical notes, "I had to sleep out without blankets, and also without supper or breakfast. But usually I had no great difficulty in finding a loaf of bread in the widely scattered clearings of the farmers. With one of these big backwoods loaves I was able to wander many a long, wild mile, free as the winds in the glorious forests and bogs, gathering plants and feeding on God's abounding, inexhaustible spiritual beauty bread. Only once in my long Canada wanderings was the deep peace of the wilderness savagely broken. It happened in the maple woods about midnight, when I was cold and my fire was low. I was awakened by the awfully dismal howling of the wolves, and got up in haste to replenish the fire."

It was not, therefore, a new species of adventure upon which Mr. Muir embarked when he started on his Southern foot-tour. It was only a new response to the lure of those favorite studies which he had already pursued over uncounted miles of virgin Western forests and prairies. Indeed, had it not been for the accidental injury to his right eye in the month of March, 1867, he probably would have started somewhat earlier than he did. In a letter written to Indianapolis friends on the day after the accident, he refers mournfully to the interrup-

tion of a long cherished plan. "For weeks," he writes, "I have daily consulted maps in locating a route through the Southern States, the West Indies, South America, and Europe — a botanical journey studied for years. And so my mind has long been in a glow with visions of the glories of a tropical flora; but, alas, I am half-blind. My right eye, trained to minute analysis, is lost and I have scarce heart to open the other. Had this journey been accomplished, the stock of varied beauty acquired would have made me willing to shrink into any corner of the world, however obscure and however remote."

The injury to his eye proved to be less serious than he had at first supposed. In June he was writing to a friend: "I have been reading and botanizing for some weeks, and find that for such work I am not very much disabled. I leave this city [Indianapolis] for home to-morrow, accompanied by Merrill Moores, a little friend of mine. We will go to Decatur, Illinois, thence northward through the wild prairies, botanizing a few weeks by the way. . . . I hope to go South towards the end of the summer, and as this will be a journey that I know very little about, I hope to profit by your counsel before setting out."

In an account written after the excursion he

says: "I was eager to see Illinois prairies on my way home, so we went to Decatur, near the center of the State, thence north [to Portage] by Rockford and Janesville. I botanized one week on the prairie about seven miles southwest of Pecatonica. . . . To me all plants are more precious than before. My poor eye is not better, nor worse. A cloud is over it, but in gazing over the widest landscapes I am not always sensible of its presence."

By the end of August Mr. Muir was back again in Indianapolis. He had found it convenient to spend a "botanical week" among his University friends in Madison. So keen was his interest in plants at this time that an interval of five hours spent in Chicago was promptly turned to account in a search for them. "I did not find many plants in her tumultuous streets," he complains; "only a few grassy plants of wheat, and two or three species of weeds — amaranth, purslane, carpet-weed, etc., — the weeds, I suppose, for man to walk upon, the wheat to feed him. I saw some green algæ, but no mosses. Some of the latter I expected to see on wet walls, and in seams on the pavements. But I suppose that the manufacturers' smoke and the terrible noise are too great for the hardiest of them. I wish I knew where I was going. Doomed to be 'carried of

' the spirit into the wilderness,' I suppose. I wish I could be more moderate in my desires, but I cannot, and so there is no rest."

The letter noted above was written only two days before he started on his long walk to Florida. If the concluding sentences still reflect indecision, they also convey a hint of the overmastering impulse under which he was acting. The opening sentences of his journal, afterwards crossed out, witness to this sense of inward compulsion which he felt. "Few bodies," he wrote, "are inhabited by so satisfied a soul that they are allowed exemption from extraordinary exertion through a whole life." After reciting illustrations of nature's periodicity, of the ebbs and flows of tides, and the pulsation of other forces, visible and invisible, he observes that "so also there are tides not only in the affairs of men, but in the primal thing of life itself. In some persons the impulse, being slight, is easily obeyed or overcome. But in others it is constant and cumulative in action until its power is sufficient to overmaster all impediments, and to accomplish the full measure of its demands. For many a year I have been impelled toward the Lord's tropic gardens of the South. Many influences have tended to blunt or bury this constant longing, but it has outlived and overpowered them all."

Muir's love of nature was so largely a part of his religion that he naturally chose Biblical phraseology when he sought a vehicle for his feelings. No prophet of old could have taken his call more seriously, or have entered upon his mission more fervently. During the long days of his confinement in a dark room he had opportunity for much reflection. He concluded that life was too brief and uncertain, and time too precious, to waste upon belts and saws; that while he was pottering in a wagon factory, God was making a world; and he determined that, if his eyesight was spared, he would devote the remainder of his life to a study of the process. Thus the previous bent of his habits and studies, and the sobering thoughts induced by one of the bitterest experiences of his life, combined to send him on the long journey recorded in these pages.

Some autobiographical notes found among his papers furnish interesting additional details about the period between his release from the dark room and his departure for the South. "As soon as I got out into heaven's light," he says, "I started on another long excursion, making haste with all my heart to store my mind with the Lord's beauty, and thus be ready for any fate light or dark. And it was from this time that my long, continuous wanderings

may be said to have fairly commenced. I bade adieu to mechanical inventions, determined to devote the rest of my life to the study of the inventions of God. I first went home to Wisconsin, botanizing by the way, to take leave of my father and mother, brothers and sisters, all of whom were still living near Portage. I also visited the neighbors I had known as a boy, renewed my acquaintance with them after an absence of several years, and bade each a formal good-bye. When they asked where I was going I said, 'Oh! I don't know — just anywhere in the wilderness, southward. I have already had glorious glimpses of the Wisconsin, Iowa, Michigan, Indiana, and Canada wildernesses; now I propose to go South and see something of the vegetation of the warm end of the country, and if possible to wander far enough into South America to see tropical vegetation in all its palmy glory.'

"The neighbors wished me well, advised me to be careful of my health, and reminded me that the swamps in the South were full of malaria. I stopped overnight at the home of an old Scotch lady who had long been my friend, and was now particularly motherly in good wishes and advice. I told her that as I was sauntering along the road, just as the sun was going down, I heard a darling speckled-breast

sparrow singing, 'The day's done, the day's done.' 'Weel, John, my dear laddie,' she replied, 'your day will never be done. There is no end to the kind of studies you like so well, but there's an end to mortals' strength of body and mind, to all that mortals can accomplish. You are sure to go on and on, but I want you to remember the fate of Hugh Miller.' She was one of the finest examples I ever knew of a kind, generous, great-hearted Scotchwoman."

The formal leave-taking from family and neighbors indicates his belief that he was parting from home and friends for a long time. On Sunday, the 1st of September, 1867, Mr. Muir said good-bye also to his Indianapolis friends, and went by rail to Jeffersonville, where he spent the night. The next morning he crossed the river, walked through Louisville, and struck southward through the State of Kentucky. A letter written a week later "among the hills of Bear Creek, seven miles southeast of Burkesville, Kentucky," shows that he had covered about twenty-five miles a day. "I walked from Louisville," he says, "a distance of one hundred and seventy miles, and my feet are sore. But, oh! I am paid for all my toil a thousand times over. I am in the woods on a hilltop with my back against a moss-clad log. I wish you could see my last evening's bed-

room. The sun has been among the tree-tops for more than an hour; the dew is nearly all taken back, and the shade in these hill basins is creeping away into the unbroken strongholds of the grand old forests.

"I have enjoyed the trees and scenery of Kentucky exceedingly. How shall I ever tell of the miles and miles of beauty that have been flowing into me in such measure? These lofty curving ranks of lobing, swelling hills, these concealed valleys of fathomless verdure, and these lordly trees with the nursing sunlight glancing in their leaves upon the outlines of the magnificent masses of shade embosomed among their wide branches — these are cut into my memory to go with me forever.

"I was a few miles south of Louisville when I planned my journey. I spread out my map under a tree and made up my mind to go through Kentucky, Tennessee, and Georgia to Florida, thence to Cuba, thence to some part of South America; but it will be only a hasty walk. I am thankful, however, for so much. My route will be through Kingston and Madisonville, Tennessee, and through Blairsville and Gainesville, Georgia. Please write me at Gainesville. I am terribly letter-hungry. I hardly dare to think of home and friends."

In editing the journal I have endeavored, by

use of all the available evidence, to trail Mr. Muir as closely as possible on maps of the sixties as well as on the most recent state and topographical maps. The one used by him has not been found, and probably is no longer in existence. Only about twenty-two towns and cities are mentioned in his journal. This constitutes a very small number when one considers the distance he covered. Evidently he was so absorbed in the plant life of the region traversed that he paid no heed to towns, and perhaps avoided them wherever possible.

The sickness which overtook him in Florida was probably of a malarial kind, although he describes it under different names. It was, no doubt, a misfortune in itself, and a severe test for his vigorous constitution. But it was also a blessing in disguise, inasmuch as it prevented him from carrying out his foolhardy plan of penetrating the tropical jungles of South America along the Andes to a tributary of the Amazon, and then floating down the river on a raft to the Atlantic. As readers of the journal will perceive, he clung to this intention even during his convalescence at Cedar Keys and in Cuba. In a letter dated the 8th of November he describes himself as "just creeping about getting plants and strength after my fever." Then he asks his correspondent to direct let-

ters to New Orleans, Louisiana. "I shall have to go there," he writes, "for a boat to South America. I do not yet know to which point in South America I had better go." His hope to find there a boat for South America explains an otherwise mystifying letter in which he requested his brother David to send him a certain sum of money by American Express order to New Orleans. As a matter of fact he did not go into Louisiana at all, either because he learned that no south-bound ship was available at the mouth of the Mississippi, or because the unexpected appearance of the Island Belle in the harbor of Cedar Keys caused him to change his plans.

In later years Mr. Muir himself strongly disparaged the wisdom of his plans with respect to South America, as may be seen in the chapter that deals with his Cuban sojourn. The judgment there expressed was lead-penciled into his journal during a reading of it long afterwards. Nevertheless the Andes and the South American forests continued to fascinate his imagination, as his letters show, for many years after he came to California. When the long deferred journey to South America was finally made in 1911, forty-four years after the first attempt, he whimsically spoke of it as the fulfillment of those youthful dreams that moved

him to undertake his thousand-mile walk to the Gulf.

Mr. Muir always recalled with gratitude the Florida friends who nursed him through his long and serious illness. In 1898, while traveling through the South on a forest-inspection tour with his friend Charles Sprague Sargent, he took occasion to revisit the scenes of his early adventures. It may be of interest to quote some sentences from letters written at that time to his wife and to his sister Sarah. "I have been down the east side of the Florida peninsula along the Indian River," he writes, "through the palm and pine forests to Miami, and thence to Key West and the southmost keys stretching out towards Cuba. Returning, I crossed over to the west coast by Palatka to Cedar Keys, on my old track made thirty-one years ago, in search of the Hodgsons who nursed me through my long attack of fever. Mr. Hodgson died long ago, also the eldest son, with whom I used to go boating among the keys while slowly convalescing."

He then tells how he found Mrs. Hodgson and the rest of the family at Archer. They had long thought him dead and were naturally very much surprised to see him. Mrs. Hodgson was in her garden and he recognized her, though the years had altered her appearance. Let us

give his own account of the meeting. "I asked her if she knew me. 'No, I don't,' she said; 'tell me your name.' 'Muir,' I replied. 'John Muir? My California John Muir?' she almost screamed. I said, 'Yes, John Muir; and you know I promised to return and visit you in about twenty-five years, and though I am a little late — six or seven years — I've done the best I could.' The eldest boy and girl remembered the stories I told them, and when they read about the Muir Glacier they felt sure it must have been named for me. I stopped at Archer about four hours, and the way we talked over old times you may imagine." From Savannah, on the same trip, he wrote: "Here is where I spent a hungry, weary, yet happy week camping in Bonaventure graveyard thirty-one years ago. Many changes, I am told, have been made in its graves and avenues of late, and how many in my life!"

In perusing this journal the reader will miss the literary finish which Mr. Muir was accustomed to give to his later writings. This fact calls for no excuse. Not only are we dealing here with the earliest product of his pen, but with impressions and observations written down hastily during pauses in his long march. He apparently intended to use this raw material at some time for another book. If the record, as

it stands, lacks finish and adornment, it also possesses the immediacy and the freshness of first impressions.

The sources which I have used in preparing this volume are threefold: (1) the original journal, of which the first half contained many interlinear revisions and expansions, and a considerable number of rough pencil sketches of plants, trees, scenery, and notable adventures; (2) a wide-spaced, typewritten, rough copy of the journal, apparently in large part dictated to a stenographer; it is only slightly revised, and comparison with the original journal shows many significant omissions and additions; (3) two separate elaborations of his experiences in Savannah, when he camped there for a week in the Bonaventure graveyard. Throughout my work upon the primary and secondary materials I was impressed with the scrupulous fidelity with which he adhered to the facts and impressions set down in the original journal.

Readers of Muir's writings need scarcely be told that this book, autobiographically, bridges the period between *The Story of My Boyhood and Youth* and *My First Summer in the Sierra*. However, one span of the bridge was lacking, for the journal ends with Mr. Muir's arrival in San Francisco about the first of April, 1868, while his first summer in the Sierra was that of

1869. By excerpting from a letter a summary account of his first visit to Yosemite, and including a description of Twenty Hill Hollow, where he spent a large part of his first year in California, the connection is made complete. The last chapter was first published as an article in the *Overland Monthly* of July, 1872. A revised copy of the printed article, found among Muir's literary effects, has been made the basis of the chapter on Twenty Hill Hollow as it appears in this volume.

WILLIAM FREDERIC BADÈ

A THOUSAND-MILE WALK TO THE GULF

CHAPTER I

KENTUCKY FORESTS AND CAVES

I HAD long been looking from the wild woods and gardens of the Northern States to those of the warm South, and at last, all drawbacks overcome, I set forth [from Indianapolis] on the first day of September, 1867, joyful and free, on a thousand-mile walk to the Gulf of Mexico. [The trip to Jeffersonville, on the banks of the Ohio, was made by rail.] Crossing the Ohio at Louisville [September 2], I steered through the big city by compass without speaking a word to any one. Beyond the city I found a road running southward, and after passing a scatterment of suburban cabins and cottages I reached the green woods and spread out my pocket map to rough-hew a plan for my journey.

My plan was simply to push on in a general southward direction by the wildest, leafiest, and least trodden way I could find, promising the greatest extent of virgin forest. Folding my

map, I shouldered my little bag and plant press and strode away among the old Kentucky oaks, rejoicing in splendid visions of pines and palms and tropic flowers in glorious array, not, however, without a few cold shadows of loneliness, although the great oaks seemed to spread their arms in welcome.

I have seen oaks of many species in many kinds of exposure and soil, but those of Kentucky excel in grandeur all I had ever before beheld. They are broad and dense and bright green. In the leafy bowers and caves of their long branches dwell magnificent avenues of shade, and every tree seems to be blessed with a double portion of strong exulting life. Walked twenty miles, mostly on river bottom, and found shelter in a rickety tavern.

September 3. Escaped from the dust and squalor of my garret bedroom to the glorious forest. All the streams that I tasted hereabouts are salty and so are the wells. Salt River was nearly dry. Much of my way this forenoon was over naked limestone. After passing the level ground that extended twenty-five or thirty miles from the river I came to a region of rolling hills called Kentucky Knobs — hills of denudation, covered with trees to the top. Some of them have a few pines. For a few hours I followed the farmers' paths, but soon wan-

dered away from roads and encountered many a tribe of twisted vines difficult to pass.

Emerging about noon from a grove of giant sunflowers, I found myself on the brink of a tumbling rocky stream [Rolling Fork]. I did not expect to find bridges on my wild ways, and at once started to ford, when a negro woman on the opposite bank earnestly called on me to wait until she could tell the "men folks" to bring me a horse — that the river was too deep and rapid to wade and that I would "sartain be drowned" if I attempted to cross. I replied that my bag and plants would ballast me; that the water did not appear to be deep, and that if I were carried away I was a good swimmer and would soon dry in the sunshine. But the cautious old soul replied that no one ever waded that river and set off for a horse, saying that it was no trouble at all.

In a few minutes the ferry horse came gingerly down the bank through vines and weeds. His long stilt legs proved him a natural wader. He was white, and the little sable negro boy that rode him looked like a bug on his back. After many a tottering halt the outward voyage was safely made and I mounted behind little Nig. He was a queer specimen, puffy and jet as an India rubber doll and his hair was matted in sections like the wool of a merino sheep. The

old horse, overladen with his black and white burden, rocked and stumbled on his stilt legs with fair promises of a fall. But all ducking signs failed and we arrived in safety among the weeds and vines of the rugged bank. A salt bath would have done us no harm. I could swim and little Afric looked as if he might float like a bladder.

I called at the homestead where my ferryman informed me I would find "tollable" water. But, like all the water of this section that I have tasted, it was intolerable with salt. Everything about this old Kentucky home bespoke plenty, unpolished and unmeasured. The house was built in true Southern style, airy, large, and with a transverse central hall that looks like a railway tunnel, and heavy rough outside chimneys. The negro quarters and other buildings are enough in number for a village, altogether an interesting representative of a genuine old Kentucky home, embosomed in orchards, corn fields and green wooded hills.

Passed gangs of woodmen engaged in felling and hewing the grand oaks for market. Fruit very abundant. Magnificent flowing hill scenery all afternoon. Walked southeast from Elizabethtown till wearied and lay down in the bushes by guess.

September 4. The sun was gilding the hill-

tops when I was awakened by the alarm notes of birds whose dwelling in a hazel thicket I had disturbed. They flitted excitedly close to my head, as if scolding or asking angry questions, while several beautiful plants, strangers to me, were looking me full in the face. The first botanical discovery in bed! This was one of the most delightful camp grounds, though groped for in the dark, and I lingered about it enjoying its trees and soft lights and music.

Walked ten miles of forest. Met a strange oak with willow-looking leaves. Entered a sandy stretch of black oak called "Barrens," many of which were sixty or seventy feet in height, and are said to have grown since the fires were kept off, forty years ago. The farmers hereabouts are tall, stout, happy fellows, fond of guns and horses. Enjoyed friendly chats with them. Arrived at dark in a village that seemed to be drawing its last breath. Was guided to the "tavern" by a negro who was extremely accommodating. "No trouble at all," he said.

September 5. No bird or flower or friendly tree above me this morning; only squalid garret rubbish and dust. Escaped to the woods. Came to the region of caves. At the mouth of the first I discovered I was surprised to find ferns which belonged to the coolest nooks of Wisconsin and

northward, but soon observed that each cave rim has a zone of climate peculiar to itself, and it is always cool. This cave had an opening about ten feet in diameter, and twenty-five feet perpendicular depth. A strong cold wind issued from it and I could hear the sounds of running water. A long pole was set against its walls as if intended for a ladder, but in some places it was slippery and smooth as a mast and would test the climbing powers of a monkey. The walls and rim of this natural reservoir were finely carved and flowered. Bushes leaned over it with shading leaves and beautiful ferns and mosses were in rows and sheets on its slopes and shelves. Lingered here a long happy while, pressing specimens and printing this beauty into memory.

Arrived about noon at Munfordville; was soon discovered and examined by Mr. Munford himself, a pioneer and father of the village. He is a surveyor — has held all country offices, and every seeker of roads and lands applies to him for information. He regards all the villagers as his children, and all strangers who enter Munfordville as his own visitors. Of course he inquired my business, destination, etc., and invited me to his house.

After refreshing me with "parrs" he complacently covered the table with bits of rocks,

plants, etc., things new and old which he had gathered in his surveying walks and supposed to be full of scientific interest. He informed me that all scientific men applied to him for information, and as I was a botanist, he either possessed, or ought to possess, the knowledge I was seeking, and so I received long lessons concerning roots and herbs for every mortal ill. Thanking my benefactor for his kindness, I escaped to the fields and followed a railroad along the base of a grand hill ridge. As evening came on all the dwellings I found seemed to repel me, and I could not muster courage enough to ask entertainment at any of them. Took refuge in a log schoolhouse that stood on a hillside beneath stately oaks and slept on the softest looking of the benches.

September 6. Started at the earliest bird song in hopes of seeing the great Mammoth Cave before evening. Overtook an old negro driving an ox team. Rode with him a few miles and had some interesting chat concerning war, wild fruits of the woods, etc. "Right heah," said he, "is where the Rebs was a-tearin' up the track, and they all a sudden thought they seed the Yankees a-comin', obah dem big hills dar, and Lo'd, how dey run." I asked him if he would like a renewal of these sad war times, when his flexible face suddenly calmed, and he

said with intense earnestness, "Oh, Lo'd, want no mo wa, Lo'd no." Many of these Kentucky negroes are shrewd and intelligent, and when warmed upon a subject that interests them, are eloquent in no mean degree.

Arrived at Horse Cave, about ten miles from the great cave. The entrance is by a long easy slope of several hundred yards. It seems like a noble gateway to the birthplace of springs and fountains and the dark treasuries of the mineral kingdom. This cave is in a village [of the same name] which it supplies with an abundance of cold water, and cold air that issues from its fern-clad lips. In hot weather crowds of people sit about it in the shade of the trees that guard it. This magnificent fan is capable of cooling everybody in the town at once.

Those who live near lofty mountains may climb to cool weather in a day or two, but the overheated Kentuckians can find a patch of cool climate in almost every glen in the State. The villager who accompanied me said that Horse Cave had never been fully explored, but that it was several miles in length at least. He told me that he had never been at Mammoth Cave — that it was not worth going ten miles to see, as it was nothing but a hole in the ground, and I found that his was no rare case. He was one of the useful, practical men — too wise to waste

precious time with weeds, caves, fossils, or anything else that he could not eat.

Arrived at the great Mammoth Cave. I was surprised to find it in so complete naturalness. A large hotel with fine walks and gardens is near it. But fortunately the cave has been unimproved, and were it not for the narrow trail that leads down the glen to its door, one would not know that it had been visited. There are house-rooms and halls whose entrances give but slight hint of their grandeur. And so also this magnificent hall in the mineral kingdom of Kentucky has a door comparatively small and unpromising. One might pass within a few yards of it without noticing it. A strong cool breeze issues constantly from it, creating a northern climate for the ferns that adorn its rocky front.

I never before saw Nature's grandeur in so abrupt contrast with paltry artificial gardens. The fashionable hotel grounds are in exact parlor taste, with many a beautiful plant cultivated to deformity, and arranged in strict geometrical beds, the whole pretty affair a laborious failure side by side with Divine beauty. The trees around the mouth of the cave are smooth and tall and bent forward at the bottom, then straight upwards. Only a butternut seems, by its angular knotty

branches, to sympathize with and belong to the cave, with a fine growth of *Cystopteris* and *Hypnum*.

Started for Glasgow Junction. Got belated in the hill woods. Inquired my way at a farm-house and was invited to stay overnight in a rare, hearty, hospitable manner. Engaged in familiar running talk on politics, war times and theology. The old Kentuckian seemed to take a liking to me and advised me to stay in these hills until next spring, assuring me that I would find much to interest me in and about the Great Cave; also, that he was one of the school officials and was sure that I could obtain their school for the winter term. I sincerely thanked him for his kind plans, but pursued my own.

September 7. Left the hospitable Kentuckians with their sincere good wishes and bore away southward again through the deep green woods. In noble forests all day. Saw mistletoe for the first time. Part of the day I traveled with a Kentuckian from near Burkesville. He spoke to all the negroes he met with familiar kindly greetings, addressing them always as "Uncles" and "Aunts." All travelers one meets on these roads, white and black, male and female, travel on horseback. Glasgow is one of the few Southern towns that shows ordinary American life. Night with a well-to-do farmer.

September 8. Deep, green, bossy sea of waving, flowing hilltops. Corn and cotton and tobacco fields scattered here and there. I had imagined that a cotton field in flower was something magnificent. But cotton is a coarse, rough, straggling, unhappy looking plant, not half as good-looking as a field of Irish potatoes.

Met a great many negroes going to meeting, dressed in their Sunday best. Fat, happy looking and contented. The scenery on approaching the Cumberland River becomes still grander. Burkesville, in beautiful location, is embosomed in a glorious array of verdant flowing hills. The Cumberland must be a happy stream. I think I could enjoy traveling with it in the midst of such beauty all my life. This evening I could find none willing to take me in, and so lay down on a hillside and fell asleep muttering praises to the happy abounding beauty of Kentucky.

September 9. Another day in the most favored province of bird and flower. Many rapid streams, flowing in beautiful flower-bordered cañons embosomed in dense woods. Am seated on a grand hill-slope that leans back against the sky like a picture. Amid the wide waves of green wood there are spots of autumnal yellow and the atmosphere, too, has the dawnings of autumn in colors and sounds. The soft light of morning falls upon ripening forests of

oak and elm, walnut and hickory, and all Nature is thoughtful and calm. Kentucky is the greenest, leafiest State I have yet seen. The sea of soft temperate plant-green is deepest here.

Comparing volumes of vegetable verdure in different countries to a wedge, the thick end would be in the forests of Kentucky, the other in the lichens and mosses of the North. This verdure wedge would not be perfect in its lines. From Kentucky it would maintain its thickness long and well in passing the level forests of Indiana and Canada. From the maples and pines of Canada it would slope rapidly to the bleak Arctic hills with dwarf birches and alders; thence it would thin out in a long edge among hardy lichens and liverworts and mosses to the dwelling-places of everlasting frost. Far the grandest of all Kentucky plants are her noble oaks. They are the master existences of her exuberant forests. Here is the Eden, the paradise of oaks. Passed the Kentucky line towards evening and obtained food and shelter from a thrifty Tennessee farmer, after he had made use of all the ordinary anti-hospitable arguments of cautious comfortable families.

September 10. Escaped from a heap of uncordial kindness to the generous bosom of the woods. After a few miles of level ground in

luxuriant tangles of brooding vines, I began the ascent of the Cumberland Mountains, the first real mountains that my foot ever touched or eyes beheld. The ascent was by a nearly regular zigzag slope, mostly covered up like a tunnel by overarching oaks. But there were a few openings where the glorious forest road of Kentucky was grandly seen, stretching over hill and valley, adjusted to every slope and curve by the hands of Nature — the most sublime and comprehensive picture that ever entered my eyes. Reached the summit in six or seven hours — a strangely long period of up-grade work to one accustomed only to the hillocky levels of Wisconsin and adjacent states.

CHAPTER II

CROSSING THE CUMBERLAND MOUNTAINS

I HAD climbed but a short distance when I was overtaken by a young man on horseback, who soon showed that he intended to rob me if he should find the job worth while. After he had inquired where I came from, and where I was going, he offered to carry my bag. I told him that it was so light that I did not feel it at all as a burden; but he insisted and coaxed until I allowed him to carry it. As soon as he had gained possession I noticed that he gradually increased his speed, evidently trying to get far enough ahead of me to examine the contents without being observed. But I was too good a walker and runner for him to get far. At a turn of the road, after trotting his horse for about half an hour, and when he thought he was out of sight, I caught him rummaging my poor bag. Finding there only a comb, brush, towel, soap, a change of underclothing, a copy of Burns' poems, Milton's Paradise Lost, and a small New Testament, he waited for me, handed back my bag, and returned down the hill, saying that he had forgotten something.

I found splendid growths of shining-leaved

Ericaceæ [heathworts] for which the Alleghany Mountains are noted. Also ferns of which *Osmunda cinnamomea* [Cinnamon Fern] is the largest and perhaps the most abundant. *Osmunda regalis* [Flowering Fern] is also common here, but not large. In Wood's [1] and Gray's Botany *Osmunda cinnamomea* is said to be a much larger fern than *Osmunda Claytoniana*. This I found to be true in Tennessee and southward, but in Indiana, part of Illinois, and Wisconsin the opposite is true. Found here the beautiful, sensitive *Schrankia*, or sensitive brier. It is a long, prickly, leguminous vine, with dense heads of small, yellow fragrant flowers.

Vines growing on roadsides receive many a tormenting blow, simply because they give evidence of feeling. Sensitive people are served in the same way. But the roadside vine soon becomes less sensitive, like people getting used to teasing — Nature, in this instance, making for the comfort of flower creatures the same benevolent arrangement as for man. Thus I found that the *Schrankia* vines growing along footpaths leading to a backwoods schoolhouse were much less sensitive than those in the ad-

[1] Alphonso Wood, *Class-book of Botany, with a Flora of the United States and Canada*. The copy of this work, carried by Mr. Muir on his wanderings, is still extant. The edition is that of 1862.

jacent unfrequented woods, having learned to pay but slight attention to the tingling strokes they get from teasing scholars.

It is startling to see the pairs of pinnate leaves rising quickly out of the grass and folding themselves close in regular succession from the root to the end of the prostrate stems, ten to twenty feet in length. How little we know as yet of the life of plants — their hopes and fears, pains and enjoyments!

Traveled a few miles with an old Tennessee farmer who was much excited on account of the news he had just heard. "Three kingdoms, England, Ireland and Russia, have declared war agin the United States. Oh, it's terrible, terrible," said he. "This big war comin' so quick after our own big fight. Well, it can't be helped, and all I have to say is, Amerricay forever, but I'd a heap rather they did n't fight."

"But are you sure the news is true?" I inquired. "Oh, yes, quite sure," he replied, "for me and some of my neighbors were down at the store last night, and Jim Smith can read, and he found out all about it in a newspaper."

Passed the poor, rickety, thrice-dead village of Jamestown, an incredibly dreary place. Toward the top of the Cumberland grade, about two hours before sundown I came to a log house, and as I had been warned that all the broad

plateau of the range for forty or fifty miles was desolate, I began thus early to seek a lodging for the night. Knocking at the door, a motherly old lady replied to my request for supper and bed and breakfast, that I was welcome to the best she had, provided that I had the necessary change to pay my bill. When I told her that unfortunately I had nothing smaller than a five dollar greenback she said, "Well, I'm sorry, but cannot afford to keep you. Not long ago ten soldiers came across from North Carolina, and in the morning they offered a greenback that I could n't change, and so I got nothing for keeping them, which I was ill able to afford." "Very well," I said, "I'm glad you spoke of this beforehand, for I would rather go hungry than impose on your hospitality."

As I turned to leave, after bidding her goodbye, she, evidently pitying me for my tired looks, called me back and asked me if I would like a drink of milk. This I gladly accepted, thinking that perhaps I might not be successful in getting any other nourishment for a day or two. Then I inquired whether there were any more houses on the road, nearer than North Carolina, forty or fifty miles away. "Yes," she said, "it 's only two miles to the next house, but beyond that there are no houses that I know of except empty ones whose

owners have been killed or driven away during the war."

Arriving at the last house, my knock at the door was answered by a bright, good-natured, good-looking little woman who, in reply to my request for a night's lodging and food, said, "Oh, I guess so. I think you can stay. Come in and I'll call my husband." "But I must first warn you," I said, "that I have nothing smaller to offer you than a five dollar bill for my entertainment. I don't want you to think that I am trying to impose on your hospitality."

She then called her husband, a blacksmith, who was at work at his forge. He came out, hammer in hand, bare-breasted, sweaty, begrimed, and covered with shaggy black hair. In reply to his wife's statement, that this young man wished to stop overnight, he quickly replied, "That's all right; tell him to go into the house." He was turning to go back to his shop, when his wife added, "But he says he has n't any change to pay. He has nothing smaller than a five dollar bill." Hesitating only a moment, he turned on his heel and said, "Tell him to go into the house. A man that comes right out like that beforehand is welcome to eat my bread."

When he came in after his hard day's work and sat down to dinner, he solemnly asked a

blessing on the frugal meal, consisting solely of corn bread and bacon. Then, looking across the table at me, he said, "Young man, what are you doing down here?" I replied that I was looking at plants. "Plants? What kind of plants?" I said, "Oh, all kinds; grass, weeds, flowers, trees, mosses, ferns, — almost everything that grows is interesting to me."

"Well, young man," he queried, "you mean to say that you are not employed by the government on some private business?" "No," I said, "I am not employed by any one except just myself. I love all kinds of plants, and I came down here to these Southern States to get acquainted with as many of them as possible."

"You look like a strong-minded man," he replied, "and surely you are able to do something better than wander over the country and look at weeds and blossoms. These are hard times, and real work is required of every man that is able. Picking up blossoms does n't seem to be a man's work at all in any kind of times."

To this I replied, "You are a believer in the Bible, are you not?" "Oh, yes." "Well, you know Solomon was a strong-minded man, and he is generally believed to have been the very wisest man the world ever saw, and yet he considered it was worth while to study plants; not only to go and pick them up as I am doing,

but to study them; and you know we are told that he wrote a book about plants, not only of the great cedars of Lebanon, but of little bits of things growing in the cracks of the walls.[1]

"Therefore, you see that Solomon differed very much more from you than from me in this matter. I'll warrant you he had many a long ramble in the mountains of Judea, and had he been a Yankee he would likely have visited every weed in the land. And again, do you not remember that Christ told his disciples to 'consider the lilies how they grow,' and compared their beauty with Solomon in all his glory? Now, whose advice am I to take, yours or Christ's? Christ says, 'Consider the lilies.' You say, 'Don't consider them. It is n't worth while for any strong-minded man.' "

This evidently satisfied him, and he acknowledged that he had never thought of blossoms in that way before. He repeated again and again that I must be a very strong-minded man, and admitted that no doubt I was fully justified in picking up blossoms. He then told me that although the war was over, walking across the Cumberland Mountains still was far from safe on account of small bands of guerrillas who

[1] The previously mentioned copy of Wood's Botany, used by John Muir, quotes on the titlepage I Kings iv, 33: "He spake of trees, from the cedar of Lebanon even unto the hyssop that springeth out of the wall."

were in hiding along the roads, and earnestly entreated me to turn back and not to think of walking so far as the Gulf of Mexico until the country became quiet and orderly once more.

I replied that I had no fear, that I had but very little to lose, and that nobody was likely to think it worth while to rob me; that, anyhow, I always had good luck. In the morning he repeated the warning and entreated me to turn back, which never for a moment interfered with my resolution to pursue my glorious walk.

September 11. Long stretch of level sandstone plateau, lightly furrowed and dimpled with shallow groove-like valleys and hills. The trees are mostly oaks, planted wide apart like those in the Wisconsin woods. A good many pine trees here and there, forty to eighty feet high, and most of the ground is covered with showy flowers. Polygalas [milkworts], solidagoes [goldenrods], and asters were especially abundant. I came to a cool clear brook every half mile or so, their banks planted with *Osmunda regalis*, *Osmunda cinnamomea*, and handsome sedges. The few larger streams were fringed with laurels and azaleas. Large areas beneath the trees are covered with formidable green briers and brambles, armed with hooked claws, and almost impenetrable. Houses are

far apart and uninhabited, orchards and fences in ruins — sad marks of war.

About noon my road became dim and at last vanished among desolate fields. Lost and hungry, I knew my direction but could not keep it on account of the briers. My path was indeed strewn with flowers, but as thorny, also, as mortal ever trod. In trying to force a way through these cat-plants one is not simply clawed and pricked through all one's clothing, but caught and held fast. The toothed arching branches come down over and above you like cruel living arms, and the more you struggle the more desperately you are entangled, and your wounds deepened and multiplied. The South has plant fly-catchers. It also has plant man-catchers.

After a great deal of defensive fighting and struggling I escaped to a road and a house, but failed to find food or shelter. Towards sundown, as I was walking rapidly along a straight stretch in the road, I suddenly came in sight of ten mounted men riding abreast. They undoubtedly had seen me before I discovered them, for they had stopped their horses and were evidently watching me. I saw at once that it was useless to attempt to avoid them, for the ground thereabout was quite open. I knew that there was nothing for it but to face them

fearlessly, without showing the slightest suspicion of foul play. Therefore, without halting even for a moment, I advanced rapidly with long strides as though I intended to walk through the midst of them. When I got within a rod or so I looked up in their faces and smilingly bade them "Howdy." Stopping never an instant, I turned to one side and walked around them to get on the road again, and kept on without venturing to look back or to betray the slightest fear of being robbed.

After I had gone about one hundred or one hundred and fifty yards, I ventured a quick glance back, without stopping, and saw in this flash of an eye that all the ten had turned their horses toward me and were evidently talking about me; supposedly, with reference to what my object was, where I was going, and whether it would be worth while to rob me. They all were mounted on rather scrawny horses, and all wore long hair hanging down on their shoulders. Evidently they belonged to the most irreclaimable of the guerrilla bands who, long accustomed to plunder, deplored the coming of peace. I was not followed, however, probably because the plants projecting from my plant press made them believe that I was a poor herb doctor, a common occupation in these mountain regions.

About dark I discovered, a little off the road,

another house, inhabited by negroes, where I succeeded in obtaining a much needed meal of string beans, buttermilk, and corn bread. At the table I was seated in a bottomless chair, and as I became sore and heavy I sank deeper and deeper, pressing my knees against my breast, and my mouth settled to the level of my plate. But wild hunger cares for none of these things, and my curiously compressed position prevented the too free indulgence of boisterous appetite. Of course, I was compelled to sleep with the trees in the one great bedroom of the open night.

September 12. Awoke drenched with mountain mist, which made a grand show, as it moved away before the hot sun. Passed Montgomery, a shabby village at the head of the east slope of the Cumberland Mountains. Obtained breakfast in a clean house and began the descent of the mountains. Obtained fine views of a wide, open country, and distant flanking ridges and spurs. Crossed a wide cool stream [Emory River], a branch of the Clinch River. There is nothing more eloquent in Nature than a mountain stream, and this is the first I ever saw. Its banks are luxuriantly peopled with rare and lovely flowers, and overarching trees, making one of Nature's coolest and most hospitable places. Every tree, every flower, every

ripple and eddy of this lovely stream seemed solemnly to feel the presence of the great Creator. Lingered in this sanctuary a long time, thanking the Lord with all my heart for his goodness in allowing me to enter and enjoy it.

Discovered two ferns, *Dicksonia* and a small matted polypod on trees, common farther south. Also a species of magnolia with very large leaves and scarlet conical fruit. Near this stream I spent some joyous time in a grand rock-dwelling full of mosses, birds, and flowers. Most heavenly place I ever entered. The long narrow valleys of the mountainside, all well watered and nobly adorned with oaks, magnolias, laurels, azaleas, asters, ferns, Hypnum mosses, Madotheca [Scale-mosses], etc. Also towering clumps of beautiful hemlocks. The hemlock, judging from the common species of Canada, I regarded as the least noble of the conifers. But those of the eastern valleys of the Cumberland Mountains are as perfect in form and regal in port as the pines themselves. The latter abundant. Obtained fine glimpses from open places as I descended to the great valley between these mountains and the Unaka Mountains on the state line. Forded the Clinch, a beautiful clear stream that knows many of the dearest mountain retreats that ever heard the music of running water. Reached Kingston

before dark. Sent back my plant collections by express to my brother in Wisconsin.

September 13. Walked all day across small parallel valleys that flute the surface of the one wide valley. These flutings appear to have been formed by lateral pressure, are fertile, and contain some fine forms, though the seal of war is on all things. The roads never seem to proceed with any fixed purpose, but wander as if lost. In seeking the way to Philadelphia [in Loudon County, Tennessee], I was told by a buxom Tennessee "gal" that over the hills was much the nearer way, that she always went that way, and that surely I could travel it.

I started over the flint-ridges, but soon reached a set of enchanted little valleys among which, no matter how or in what direction I traveled, I could not get a foot nearer to Philadelphia. At last, consulting my map and compass, I neglected all directions and finally reached the house of a negro driver, with whom I put up for the night. Received a good deal of knowledge which may be of use should I ever be a negro teamster.

September 14. Philadelphia is a very filthy village in a beautiful situation. More or less of pine. Black oak most abundant. *Polypodium hexagonopterum* and *Aspidium acrostichoides* [Christmas Fern] most abundant of ferns and

most generally distributed. *Osmunda claytoniana* rare, not in fruit, small. *Dicksonia* abundant, after leaving the Cumberland Mountains. *Asplenium ebeneum* [Ebony Spleenwort] quite common in Tennessee and many parts of Kentucky. *Cystopteris* [Bladder Fern], and *Asplenium filix-fœmina* not common through the same range. *Pteris aquilina* [Common Brake] abundant, but small.

Walked through many a leafy valley, shady grove, and cool brooklet. Reached Madisonville, a brisk village. Came in full view of the Unaka Mountains, a magnificent sight. Stayed overnight with a pleasant young farmer.

September 15. Most glorious billowy mountain scenery. Made many a halt at open places to take breath and to admire. The road, in many places cut into the rock, goes winding about among the knobs and gorges. Dense growth of asters, liatris,[1] and grapevines.

Reached a house before night, and asked leave to stop. "Well, you're welcome to stop," said the mountaineer, "if you think you can

[1] Wood's Botany, edition of 1862, furnishes the following interesting comment on *Liatris odoratissima* (Willd.), popularly known as Vanilla Plant or Deer's Tongue: "The fleshy leaves exhale a rich fragrance even for years after they are dry, and are therefore by the southern planters largely mixed with their cured tobacco, to impart its fragrance to that nauseous weed."

live till morning on what I have to live on all the time." Found the old gentleman very communicative. Was favored with long "bar" stories, deer hunts, etc., and in the morning was pressed to stay a day or two.

September 16. "I will take you," said he, "to the highest ridge in the country, where you can see both ways. You will have a view of all the world on one side of the mountains and all creation on the other. Besides, you, who are traveling for curiosity and wonder, ought to see our gold mines." I agreed to stay and went to the mines. Gold is found in small quantities throughout the Alleghanies, and many farmers work at mining a few weeks or months every year when their time is not more valuable for other pursuits. In this neighborhood miners are earning from half a dollar to two dollars a day. There are several large quartz mills not far from here. Common labor is worth ten dollars a month.

September 17. Spent the day in botanizing, blacksmithing, and examining a grist mill. Grist mills, in the less settled parts of Tennessee and North Carolina, are remarkably simple affairs. A small stone, that a man might carry under his arm, is fastened to the vertical shaft of a little home-made, boyish looking, back-action water-wheel, which, with a hopper and

a box to receive the meal, is the whole affair. The walls of the mill are of undressed poles cut from seedling trees and there is no floor, as lumber is dear. No dam is built. The water is conveyed along some hillside until sufficient fall is obtained, a thing easily done in the mountains.

On Sundays you may see wild, unshorn, uncombed men coming out of the woods, each with a bag of corn on his back. From a peck to a bushel is a common grist. They go to the mill along verdant footpaths, winding up and down over hill and valley, and crossing many a rhododendron glen. The flowers and shining leaves brush against their shoulders and knees, occasionally knocking off their coon-skin caps. The first arrived throws his corn into the hopper, turns on the water, and goes to the house. After chatting and smoking he returns to see if his grist is done. Should the stones run empty for an hour or two, it does no harm.

This is a fair average in equipment and capacity of a score of mills that I saw in Tennessee. This one was built by John Vohn, who claimed that he could make it grind twenty bushels a day. But since it fell into other hands it can be made to grind only ten per day. All the machines of Kentucky and Tennessee are far behind the age. There is scarce a trace of

that restless spirit of speculation and invention so characteristic of the North. But one way of doing things obtains here, as if laws had been passed making attempts at improvement a crime. Spinning and weaving are done in every one of these mountain cabins wherever the least pretensions are made to thrift and economy. The practice of these ancient arts they deem marks of advancement rather than of backwardness. "There 's a place back heah," said my worthy entertainer, "whar there 's a mill-house, an' a store-house, an' a still-house, an' a spring-house, an' a blacksmith shop — all in the same yard! Cows too, an' heaps of big gals a-milkin' them."

This is the most primitive country I have seen, primitive in everything. The remotest hidden parts of Wisconsin are far in advance of the mountain regions of Tennessee and North Carolina. But my host speaks of the "old-fashioned unenlightened times," like a philosopher in the best light of civilization. "I believe in Providence," said he. "Our fathers came into these valleys, got the richest of them, and skimmed off the cream of the soil. The worn-out ground won't yield no roastin' ears now. But the Lord foresaw this state of affairs, and prepared something else for us. And what is it? Why, He meant us to bust open these copper

mines and gold mines, so that we may have money to buy the corn that we cannot raise." A most profound observation.

September 18. Up the mountain on the state line. The scenery is far grander than any I ever before beheld. The view extends from the Cumberland Mountains on the north far into Georgia and North Carolina to the south, an area of about five thousand square miles. Such an ocean of wooded, waving, swelling mountain beauty and grandeur is not to be described. Countless forest-clad hills, side by side in rows and groups, seemed to be enjoying the rich sunshine and remaining motionless only because they were so eagerly absorbing it. All were united by curves and slopes of inimitable softness and beauty. Oh, these forest gardens of our Father! What perfection, what divinity, in their architecture! What simplicity and mysterious complexity of detail! Who shall read the teaching of these sylvan pages, the glad brotherhood of rills that sing in the valleys, and all the happy creatures that dwell in them under the tender keeping of a Father's care?

September 19. Received another solemn warning of dangers on my way through the mountains. Was told by my worthy entertainer of a wondrous gap in the mountains which he ad-

vised me to see. "It is called Track Gap," said he, "from the great number of tracks in the rocks — bird tracks, bar tracks, hoss tracks, men tracks, all in the solid rock as if it had been mud." Bidding farewell to my worthy mountaineer and all his comfortable wonders, I pursued my way to the south.

As I was leaving, he repeated the warnings of danger ahead, saying that there were a good many people living like wild beasts on whatever they could steal, and that murders were sometimes committed for four or five dollars, and even less. While stopping with him I noticed that a man came regularly after dark to the house for his supper. He was armed with a gun, a pistol, and a long knife. My host told me that this man was at feud with one of his neighbors, and that they were prepared to shoot one another on sight. That neither of them could do any regular work or sleep in the same place two nights in succession. That they visited houses only for food, and as soon as the one that I saw had got his supper he went out and slept in the woods, without of course making a fire. His enemy did the same.

My entertainer told me that he was trying to make peace between these two men, because they both were good men, and if they would agree to stop their quarrel, they could then

both go to work. Most of the food in this house was coffee without sugar, corn bread, and sometimes bacon. But the coffee was the greatest luxury which these people knew. The only way of obtaining it was by selling skins, or, in particular, "sang," that is ginseng,[1] which found a market in far-off China.

My path all to-day led me along the leafy banks of the Hiwassee,[2] a most impressive mountain river. Its channel is very rough, as it crosses the edges of upturned rock strata, some of them standing at right angles, or glancing off obliquely to right and left. Thus a multitude of short, resounding cataracts are produced, and the river is restrained from the headlong speed due to its volume and the inclination of its bed.

All the larger streams of uncultivated countries are mysteriously charming and beautiful, whether flowing in mountains or through swamps and plains. Their channels are interestingly sculptured, far more so than the grandest architectural works of man. The finest of

[1] Muir's journal contains the following additional note: "M. County produces $5000 worth a year of ginseng root, valued at seventy cents a pound. Under the law it is not allowed to be gathered until the first of September."

[2] In his journal Muir spells the name "Hiawassee," a form which occurs on many of the older maps. The name probably is derived from the Cherokee Indian "Ayuhwasi," a name applied to several of their former settlements.

the forests are usually found along their banks, and in the multitude of falls and rapids the wilderness finds a voice. Such a river is the Hiwassee, with its surface broken to a thousand sparkling gems, and its forest walls vine-draped and flowery as Eden. And how fine the songs it sings!

In Murphy [North Carolina] I was hailed by the sheriff who could not determine by my colors and rigging to what country or craft I belonged. Since the war, every other stranger in these lonely parts is supposed to be a criminal, and all are objects of curiosity or apprehensive concern. After a few minutes' conversation with this chief man of Murphy I was pronounced harmless, and invited to his house, where for the first time since leaving home I found a house decked with flowers and vines, clean within and without, and stamped with the comforts of culture and refinement in all its arrangements. Striking contrast to the uncouth transitionist establishments from the wigwams of savages to the clumsy but clean log castle of the thrifty pioneer.

September 20. All day among the groves and gorges of Murphy with Mr. Beale. Was shown the site of Camp Butler, where General Scott had his headquarters when he removed the Cherokee Indians to a new home in the West.

Found a number of rare and strange plants on the rocky banks of the river Hiwassee. In the afternoon, from the summit of a commanding ridge, I obtained a magnificent view of blue, softly curved mountain scenery. Among the trees I saw *Ilex* [Holly] for the first time. Mr. Beale informed me that the paleness of most of the women in his neighborhood, and the mountains in general hereabouts, was caused chiefly by smoking and by what is called "dipping." I had never even heard of dipping. The term simply describes the application of snuff to the gum by means of a small swab.

September 21. Most luxuriant forest. Many brooks running across the road. Blairsville [Georgia], which I passed in the forenoon, seems a shapeless and insignificant village, but grandly encircled with banded hills. At night I was cordially received by a farmer whose wife, though smart and neat in her appearance, was an inveterate smoker.

September 22. Hills becoming small, sparsely covered with soil. They are called "knob land" and are cultivated, or scratched, with a kind of one-tooth cultivator. Every rain robs them of their fertility, while the bottoms are of course correspondingly enriched. About noon I reached the last mountain summit on my way to the sea. It is called the Blue Ridge, and before

it lies a prospect very different from any I had passed, namely, a vast uniform expanse of dark pine woods, extending to the sea; an impressive view at any time and under any circumstances, but particularly so to one emerging from the mountains.

Traveled in the wake of three poor but merry mountaineers — an old woman, a young woman, and a young man — who sat, leaned, and lay in the box of a shackly wagon that seemed to be held together by spiritualism, and was kept in agitation by a very large and a very small mule. In going down hill the looseness of the harness and the joints of the wagon allowed the mules to back nearly out of sight beneath the box, and the three who occupied it were slid against the front boards in a heap over the mules' ears. Before they could unravel their limbs from this unmannerly and impolite disorder, a new ridge in the road frequently tilted them with a swish and a bump against the back boards in a mixing that was still more grotesque.

I expected to see man, women, and mules mingled in piebald ruin at the bottom of some rocky hollow, but they seemed to have full confidence in the back board and front board of the wagon-box. So they continued to slide comfortably up and down, from end to end, in slippery obedience to the law of gravitation, as

the grades demanded. Where the jolting was moderate, they engaged in conversation on love, marriage, and camp-meeting, according to the custom of the country. The old ladv, through all the vicissitudes of the transportation, held a bouquet of French marigolds.

The hillsides hereabouts were bearing a fine harvest of asters. Reached Mount Yonah in the evening. Had a long conversation with an old Methodist slaveholder and mine owner. Was hospitably refreshed with a drink of fine cider.

CHAPTER III

THROUGH THE RIVER COUNTRY OF GEORGIA

September 23. Am now fairly out of the mountains. Thus far the climate has not changed in any marked degree, the decrease in latitude being balanced by the increase in altitude. These mountains are highways on which northern plants may extend their colonies southward. The plants of the North and of the South have many minor places of meeting along the way I have traveled: but it is here on the southern slope of the Alleghanies that the greatest number of hardy, enterprising representatives of the two climates are assembled.

Passed the comfortable, finely shaded little town of Gainesville. The Chattahoochee River is richly embanked with massive, bossy, dark green water oaks, and wreathed with a dense growth of muscadine grapevines, whose ornate foliage, so well adapted to bank embroidery, was enriched with other interweaving species of vines and brightly colored flowers. This is the first truly southern stream I have met.

At night I reached the home of a young man with whom I had worked in Indiana, Mr.

Prater. He was down here on a visit to his father and mother. This was a plain backwoods family, living out of sight among knobby timbered hillocks not far from the river. The evening was passed in mixed conversation on southern and northern generalities.

September 24. Spent this day with Mr. Prater, sailing on the Chattahoochee, feasting on grapes that had dropped from the overhanging vines. This remarkable species of wild grape has a stout stem, sometimes five or six inches in diameter, smooth bark and hard wood, quite unlike any other wild or cultivated grapevine that I have seen. The grapes are very large, some of them nearly an inch in diameter, globular and fine-flavored. Usually there are but three or four berries in a cluster, and when mature they drop off instead of decaying on the vine. Those which fall into the river are often found in large quantities in the eddies along the bank, where they are collected by men in boats and sometimes made into wine. I think another name for this grape is the Scuppernong,[1] though called "muscadine" here.

[1] The old Indian name for the southern species of fox-grape, *Vitis rotundifolia*, which Muir describes here. Wood's Botany listed it as *Vitis vulpina* L. and remarks, "The variety called "Scuppernong" is quite common in southern gardens."

Besides sailing on the river, we had a long walk among the plant bowers and tangles of the Chattahoochee bottom lands.

September 25. Bade good-bye to this friendly family. Mr. Prater accompanied me a short distance from the house and warned me over and over again to be on the outlook for rattlesnakes. They are now leaving the damp lowlands, he told me, so that the danger is much greater because they are on their travels. Thus warned, I set out for Savannah, but got lost in the vine-fenced hills and hollows of the river bottom. Was unable to find the ford to which I had been directed by Mr. Prater.

I then determined to push on southward regardless of roads and fords. After repeated failures I succeeded in finding a place on the river bank where I could force my way into the stream through the vine-tangles. I succeeded in crossing the river by wading and swimming, careless of wetting, knowing that I would soon dry in the hot sunshine.

Out near the middle of the river I found great difficulty in resisting the rapid current. Though I braced myself with a stout stick, I was at length carried away in spite of all my efforts. But I succeeded in swimming to the shallows on the farther side, luckily caught hold of a rock, and after a rest swam and waded

ashore. Dragging myself up the steep bank by the overhanging vines, I spread out myself, my paper money, and my plants to dry.

Debated with myself whether to proceed down the river valley until I could buy a boat, or lumber to make one, for a sail instead of a march through Georgia. I was intoxicated with the beauty of these glorious river banks, which I fancied might increase in grandeur as I approached the sea. But I finally concluded that such a pleasure sail would be less profitable than a walk, and so sauntered on southward as soon as I was dry. Rattlesnakes abundant. Lodged at a farmhouse. Found a few tropical plants in the garden.

Cotton is the principal crop hereabouts, and picking is now going on merrily. Only the lower bolls are now ripe. Those higher on the plants are green and unopened. Higher still, there are buds and flowers, some of which, if the plants be thrifty and the season favorable, will continue to produce ripe bolls until January.

The negroes are easy-going and merry, making a great deal of noise and doing little work. One energetic white man, working with a will, would easily pick as much cotton as half a dozen Sambos and Sallies. The forest here is almost entirely made up of dim-green, knotty,

sparsely planted pines. The soil is mostly white, fine-grained sand.

September 26. Reached Athens in the afternoon, a remarkably beautiful and aristocratic town, containing many classic and magnificent mansions of wealthy planters, who formerly owned large negro-stocked plantations in the best cotton and sugar regions farther south. Unmistakable marks of culture and refinement, as well as wealth, were everywhere apparent. This is the most beautiful town I have seen on the journey, so far, and the only one in the South that I would like to revisit.

The negroes here have been well trained and are extremely polite. When they come in sight of a white man on the road, off go their hats, even at a distance of forty or fifty yards, and they walk bare-headed until he is out of sight.

September 27. Long zigzag walk amid the old plantations, a few of which are still cultivated in the old way by the same negroes that worked them before the war, and who still occupy their former "quarters." They are now paid seven to ten dollars a month.

The weather is very hot on these sandy, lightly shaded, lowland levels. When very thirsty I discovered a beautiful spring in a sandstone basin overhung with shady bushes

and vines, where I enjoyed to the utmost the blessing of pure cold water. Discovered here a fine southern fern, some new grasses, etc. Fancied that I might have been directed here by Providence, while fainting with thirst. It is not often hereabouts that the joys of cool water, cool shade, and rare plants are so delightfully combined.

Witnessed the most gorgeous sunset I ever enjoyed in this bright world of light. The sunny South is indeed sunny. Was directed by a very civil negro to lodgings for the night. Daily bread hereabouts means sweet potatoes and rusty bacon.

September 28. The water oak is abundant on stream banks and in damp hollows. Grasses are becoming tall and cane-like and do not cover the ground with their leaves as at the North. Strange plants are crowding about me now. Scarce a familiar face appears among all the flowers of the day's walk.

September 29. To-day I met a magnificent grass, ten or twelve feet in stature, with a superb panicle of glossy purple flowers. Its leaves, too, are of princely mould and dimensions. Its home is in sunny meadows and along the wet borders of slow streams and swamps. It seems to be fully aware of its high rank, and waves with the grace and solemn majesty of

a mountain pine. I wish I could place one of these regal plants among the grass settlements of our Western prairies. Surely every panicle would wave and bow in joyous allegiance and acknowledge their king.

September 30. Between Tomson and Augusta I found many new and beautiful grasses, tall gerardias, liatris, club mosses, etc. Here, too, is the northern limit of the remarkable long-leafed pine, a tree from sixty to seventy feet in height, from twenty to thirty inches in diameter, with leaves ten to fifteen inches long, in dense radiant masses at the ends of the naked branches. The wood is strong, hard, and very resinous. It makes excellent ship spars, bridge timbers, and flooring. Much of it is shipped to the West India Islands, New York, and Galveston.

The seedlings, five or six years old, are very striking objects to one from the North, consisting, as they do, of the straight leafless stem, surmounted by a crown of deep green leaves, arching and spreading like a palm. Children fancy that they resemble brooms, and use them as such in their picnic play-houses. *Pinus palustris* is most abundant in Georgia and Florida.

The sandy soil here is sparingly seamed with rolled quartz pebbles and clay. Denudation,

going on slowly, allows the thorough removal of these clay seams, leaving only the sand. Notwithstanding the sandiness of the soil, much of the surface of the country is covered with standing water, which is easily accounted for by the presence of the above-mentioned impermeable seams.

Traveled to-day more than forty miles without dinner or supper. No family would receive me, so I had to push on to Augusta. Went hungry to bed and awoke with a sore stomach — sore, I suppose, from its walls rubbing on each other without anything to grind. A negro kindly directed me to the best hotel, called, I think, the Planter's. Got a good bed for a dollar.

October 1. Found a cheap breakfast in a market-place; then set off along the Savannah River to Savannah. Splendid grasses and rich, dense, vine-clad forests. Muscadine grapes in cart-loads. Asters and solidagoes becoming scarce. Carices [sedges] quite rare. Leguminous plants abundant. A species of passion flower is common, reaching back into Tennessee. It is here called "apricot vine," has a superb flower, and the most delicious fruit I have ever eaten.

The pomegranate is cultivated here. The fruit is about the size of an orange, has a thick, tough skin, and when opened resembles

a many-chambered box full of translucent purple candies.

Toward evening I came to the country of one of the most striking of southern plants, the so-called "Long Moss" or Spanish Moss [Tillandsia], though it is a flowering plant and belongs to the same family as the pineapple [Bromelworts]. The trees hereabouts have all their branches draped with it, producing a remarkable effect.

Here, too, I found an impenetrable cypress swamp. This remarkable tree, called cypress, is a taxodium, grows large and high, and is remarkable for its flat crown. The whole forest seems almost level on the top, as if each tree had grown up against a ceiling, or had been rolled while growing. This taxodium is the only level-topped tree that I have seen. The branches, though spreading, are careful not to pass each other, and stop suddenly on reaching the general level, as if they had grown up against a ceiling.

The groves and thickets of smaller trees are full of blooming evergreen vines. These vines are not arranged in separate groups, or in delicate wreaths, but in bossy walls and heavy, mound-like heaps and banks. Am made to feel that I am now in a strange land. I know hardly any of the plants, but few of the birds, and I

am unable to see the country for the solemn, dark, mysterious cypress woods which cover everything.

The winds are full of strange sounds, making one feel far from the people and plants and fruitful fields of home. Night is coming on and I am filled with indescribable loneliness. Felt feverish; bathed in a black, silent stream; nervously watchful for alligators. Obtained lodging in a planter's house among cotton fields. Although the family seemed to be pretty well-off, the only light in the house was bits of pitch-pine wood burned in the fireplace.

October 2. In the low bottom forest of the Savannah River. Very busy with new specimens. Most exquisitely planned wrecks of *Agrostis scabra* [Rough Hair Grass]. Pines in glorious array with open, welcoming, approachable plants.

Met a young African with whom I had a long talk. Was amused with his eloquent narrative of coon hunting, alligators, and many superstitions. He showed me a place where a railroad train had run off the track, and assured me that the ghosts of the killed may be seen every dark night.

Had a long walk after sundown. At last was received at the house of Dr. Perkins. Saw Cape

Jasmine [*Gardenia florida*] in the garden. Heard long recitals of war happenings, discussions of the slave question, and Northern politics; a thoroughly characteristic Southern family, refined in manners and kind, but immovably prejudiced on everything connected with slavery.

The family table was unlike any I ever saw before. It was circular, and the central part of it revolved. When any one wished to be helped, he placed his plate on the revolving part, which was whirled around to the host, and then whirled back with its new load. Thus every plate was revolved into place, without the assistance of any of the family.

October 3. In "pine barrens" most of the day. Low, level, sandy tracts; the pines wide apart; the sunny spaces between, full of beautiful abounding grasses, liatris, long, wand-like solidago, saw-palmettoes, etc., covering the ground in garden style. Here I sauntered in delightful freedom, meeting none of the cat-clawed vines, or shrubs, of the alluvial bottoms. Dwarf live-oaks common.

Toward evening I arrived at the home of Mr. Cameron, a wealthy planter, who had large bands of slaves at work in his cotton fields. They still call him "Massa." He tells me that labor costs him less now than it did before the

emancipation of the negroes. When I arrived I found him busily engaged in scouring the rust off some cotton-gin saws which had been lying for months at the bottom of his mill-pond to prevent Sherman's "bummers" from destroying them. The most valuable parts of the grist-mill and cotton-press were hidden in the same way. "If Bill Sherman," he said, "should come down now without his army, he would never go back."

When I asked him if he could give me food and lodging for the night he said, "No, no, we have no accommodations for travelers." I said, "But I am traveling as a botanist and either have to find lodgings when night overtakes me or lie outdoors, which I often have had to do in my long walk from Indiana. But you see that the country here is very swampy; if you will at least sell me a piece of bread, and give me a drink at your well, I shall have to look around for a dry spot to lie down on."

Then, asking me a few questions, and narrowly examining me, he said, "Well, it is barely possible that we may find a place for you, and if you will come to the house I will ask my wife." Evidently he was cautious to get his wife's opinion of the kind of creature I was before committing himself to hospitality. He halted me at the door and called out his wife,

a fine-looking woman, who also questioned me narrowly as to my object in coming so far down through the South, so soon after the war. She said to her husband that she thought they could, perhaps, give me a place to sleep.

After supper, as we sat by the fire talking on my favorite subject of botany, I described the country I had passed through, its botanical character, etc. Then, evidently, all doubt as to my being a decent man vanished, and they both said that they would n't for anything have turned me away; but I must excuse their caution, for perhaps fewer than one in a hundred, who passed through this unfrequented part of the country, were to be relied upon. "Only a short time ago we entertained a man who was well-spoken and well-dressed, and he vanished some time during the night with some valuable silverware."

Mr. Cameron told me that when I arrived he tried me for a Mason, and finding that I was not a Mason he wondered still more that I would venture into the country without being able to gain the assistance of brother Masons in these troublous times.

"Young man," he said, after hearing my talks on botany, "I see that your hobby is botany. My hobby is e-lec-tricity. I believe that the time is coming, though we may not

live to see it, when that mysterious power or force, used now only for telegraphy, will eventually supply the power for running railroad trains and steamships, for lighting, and, in a word, electricity will do all the work of the world."

Many times since then I have thought of the wonderfully correct vision of this Georgia planter, so far in advance of almost everybody else in the world. Already nearly all that he foresaw has been accomplished, and the use of electricity is being extended more and more every year.

October 4. New plants constantly appearing. All day in dense, wet, dark, mysterious forest of flat-topped taxodiums.

October 5. Saw the stately banana for the first time, growing luxuriantly in the wayside gardens. At night with a very pleasant, intelligent Savannah family, but as usual was admitted only after I had undergone a severe course of questioning.

October 6. Immense swamps, still more completely fenced and darkened, that are never ruffled with winds or scorched with drought. Many of them seem to be thoroughly aquatic.

October 7. Impenetrable taxodium swamp, seemingly boundless. The silvery skeins of tillandsia becoming longer and more abun-

dant. Passed the night with a very pleasant family of Georgians, after the usual questions and cross questions.

October 8. Found the first woody *compositæ*, a most notable discovery. Took them to be such at a considerable distance. Almost all trees and shrubs are evergreens here with thick polished leaves. *Magnolia grandiflora* becoming common. A magnificent tree in fruit and foliage as well as in flower. Near Savannah I found waste places covered with a dense growth of woody leguminous plants, eight or ten feet high, with pinnate leaves and suspended rattling pods.

Reached Savannah, but find no word from home, and the money that I had ordered to be sent by express from Portage [Wisconsin] by my brother had not yet arrived. Feel dreadfully lonesome and poor. Went to the meanest looking lodging-house that I could find, on account of its cheapness.

CHAPTER IV

CAMPING AMONG THE TOMBS

October 9. After going again to the express office and post office, and wandering about the streets, I found a road which led me to the Bonaventure graveyard. If that burying-ground across the Sea of Galilee, mentioned in Scripture, was half as beautiful as Bonaventure, I do not wonder that a man should dwell among the tombs. It is only three or four miles from Savannah, and is reached by a smooth white-shell road.

There is but little to be seen on the way in land, water, or sky, that would lead one to hope for the glories of Bonaventure. The ragged desolate fields, on both sides of the road, are overrun with coarse rank weeds, and show scarce a trace of cultivation. But soon all is changed. Rickety log huts, broken fences, and the last patch of weedy rice-stubble are left behind. You come to beds of purple liatris and living wild-wood trees. You hear the song of birds, cross a small stream, and are with Nature in the grand old forest graveyard, so beautiful that almost any sensible person would choose

to dwell here with the dead, rather than with the lazy, disorderly living.

Part of the grounds was cultivated and planted with live-oak, about a hundred years ago, by a wealthy gentleman who had his country residence here. But much the greater part is undisturbed. Even those spots which are disordered by art, Nature is ever at work to reclaim, and to make them look as if the foot of man had never known them. Only a small plot of ground is occupied with graves and the old mansion is in ruins.

The most conspicuous glory of Bonaventure is its noble avenue of live-oaks. They are the most magnificent planted trees I have ever seen, about fifty feet high and perhaps three or four feet in diameter, with broad spreading leafy heads. The main branches reach out horizontally until they come together over the driveway, embowering it throughout its entire length, while each branch is adorned like a garden with ferns, flowers, grasses, and dwarf palmettoes.

But of all the plants of these curious tree-gardens the most striking and characteristic is the so-called Long Moss [*Tillandsia usneoides*]. It drapes all the branches from top to bottom, hanging in long silvery-gray skeins, reaching a length of not less than eight or ten feet, and

when slowly waving in the wind they produce a solemn funereal effect singularly impressive.

There are also thousands of smaller trees and clustered bushes, covered almost from sight in the glorious brightness of their own light. The place is half surrounded by the salt marshes and islands of the river, their reeds and sedges making a delightful fringe. Many bald eagles roost among the trees along the side of the marsh. Their screams are heard every morning, joined with the noise of crows, and the songs of countless warblers, hidden deep in their dwellings of leafy bowers. Large flocks of butterflies, all kinds of happy insects, seem to be in a perfect fever of joy and sportive gladness. The whole place seems like a center of life. The dead do not reign there alone.

Bonaventure to me is one of the most impressive assemblages of animal and plant creatures I ever met. I was fresh from the Western prairies, the garden-like openings of Wisconsin, the beech and maple and oak woods of Indiana and Kentucky, the dark mysterious Savannah cypress forests; but never since I was allowed to walk the woods have I found so impressive a company of trees as the tillandsia-draped oaks of Bonaventure.

I gazed awe-stricken as one new-arrived from another world. Bonaventure is called a

graveyard, a town of the dead, but the few graves are powerless in such a depth of life. The rippling of living waters, the song of birds, the joyous confidence of flowers, the calm, undisturbable grandeur of the oaks, mark this place of graves as one of the Lord's most favored abodes of life and light.

On no subject are our ideas more warped and pitiable than on death. Instead of the sympathy, the friendly union, of life and death so apparent in Nature, we are taught that death is an accident, a deplorable punishment for the oldest sin, the arch-enemy of life, etc. Town children, especially, are steeped in this death orthodoxy, for the natural beauties of death are seldom seen or taught in towns.

Of death among our own species, to say nothing of the thousand styles and modes of murder, our best memories, even among happy deaths, yield groans and tears, mingled with morbid exultation; burial companies, black in cloth and countenance; and, last of all, a black box burial in an ill-omened place, haunted by imaginary glooms and ghosts of every degree. Thus death becomes fearful, and the most notable and incredible thing heard around a death-bed is, "I fear not to die."

But let children walk with Nature, let them see the beautiful blendings and communions of

death and life, their joyous inseparable unity, as taught in woods and meadows, plains and mountains and streams of our blessed star, and they will learn that death is stingless indeed, and as beautiful as life, and that the grave has no victory, for it never fights. All is divine harmony.

Most of the few graves of Bonaventure are planted with flowers. There is generally a magnolia at the head, near the strictly erect marble, a rose-bush or two at the foot, and some violets and showy exotics along the sides or on the tops. All is enclosed by a black iron railing, composed of rigid bars that might have been spears or bludgeons from a battlefield in Pandemonium.

It is interesting to observe how assiduously Nature seeks to remedy these labored art blunders. She corrodes the iron and marble, and gradually levels the hill which is always heaped up, as if a sufficiently heavy quantity of clods could not be laid on the dead. Arching grasses come one by one; seeds come flying on downy wings, silent as fate, to give life's dearest beauty for the ashes of art; and strong evergreen arms laden with ferns and tillandsia drapery are spread over all — Life at work everywhere, obliterating all memory of the confusion of man.

In Georgia many graves are covered with a

common shingle roof, supported on four posts as the cover of a well, as if rain and sunshine were not regarded as blessings. Perhaps, in this hot and insalubrious climate, moisture and sun-heat are considered necessary evils to which they do not wish to expose their dead.

The money package that I was expecting did not arrive until the following week. After stopping the first night at the cheap, disreputable-looking hotel, I had only about a dollar and a half left in my purse, and so was compelled to camp out to make it last in buying only bread. I went out of the noisy town to seek a sleeping place that was not marshy. After gaining the outskirts of the town toward the sea, I found some low sand dunes, yellow with flowering solidagoes.

I wandered wearily from dune to dune sinking ankle-deep in the sand, searching for a place to sleep beneath the tall flowers, free from insects and snakes, and above all from my fellow man. But idle negroes were prowling about everywhere, and I was afraid. The wind had strange sounds, waving the heavy panicles over my head, and I feared sickness from malaria so prevalent here, when I suddenly thought of the graveyard.

"There," thought I, "is an ideal place for a penniless wanderer. There no superstitious

prowling mischief-maker dares venture for fear of haunting ghosts, while for me there will be God's rest and peace. And then, if I am to be exposed to unhealthy vapors, I shall have capital compensation in seeing those grand oaks in the moonlight, with all the impressive and nameless influences of this lonely beautiful place."

By this time it was near sunset, and I hastened across the common to the road and set off for Bonaventure, delighted with my choice, and almost glad to find that necessity had furnished me with so good an excuse for doing what I knew my mother would censure; for she made me promise I would not lie out-of-doors if I could possibly avoid it. The sun was set ere I was past the negroes' huts and rice fields, and I arrived near the graves in the silent hour of the gloaming.

I was very thirsty after walking so long in the muggy heat, a distance of three or four miles from the city, to get to this graveyard. A dull, sluggish, coffee-colored stream flows under the road just outside the graveyard garden park, from which I managed to get a drink after breaking a way down to the water through a dense fringe of bushes, daring the snakes and alligators in the dark. Thus refreshed I entered the weird and beautiful abode of the dead.

All the avenue where I walked was in shadow, but an exposed tombstone frequently shone out in startling whiteness on either hand, and thickets of sparkleberry bushes gleamed like heaps of crystals. Not a breath of air moved the gray moss, and the great black arms of the trees met overhead and covered the avenue. But the canopy was fissured by many a netted seam and leafy-edged opening, through which the moonlight sifted in auroral rays, broidering the blackness in silvery light. Though tired I sauntered awhile enchanted, then lay down under one of the great oaks. I found a little mound that served for a pillow, placed my plant press and bag beside me and rested fairly well, though somewhat disturbed by large prickly-footed beetles creeping across my hands and face, and by a lot of hungry stinging mosquitoes.

When I awoke, the sun was up and all Nature was rejoicing. Some birds had discovered me as an intruder, and were making a great ado in interesting language and gestures. I heard the screaming of the bald eagles, and of some strange waders in the rushes. I heard the hum of Savannah with the long jarring hallos of negroes far away. On rising I found that my head had been resting on a grave, and though my sleep had not been quite so sound as that

of the person below, I arose refreshed, and looking about me, the morning sunbeams pouring through the oaks and gardens dripping with dew, the beauty displayed was so glorious and exhilarating that hunger and care seemed only a dream.

Eating a breakfast cracker or two and watching for a few hours the beautiful light, birds, squirrels, and insects, I returned to Savannah, to find that my money package had not yet arrived. I then decided to go early to the graveyard and make a nest with a roof to keep off the dew, as there was no way of finding out how long I might have to stay. I chose a hidden spot in a dense thicket of sparkleberry bushes, near the right bank of the Savannah River, where the bald eagles and a multitude of singing birds roosted. It was so well hidden that I had to carefully fix its compass bearing in my mind from a mark I made on the side of the main avenue, that I might be able to find it at bedtime.

I used four of the bushes as corner posts for my little hut, which was about four or five feet long by about three or four in width, tied little branches across from forks in the bushes to support a roof of rushes, and spread a thick mattress of Long Moss over the floor for a bed. My whole establishment was on so small a

scale that I could have taken up not only my bed, but my whole house, and walked. There I lay that night, eating a few crackers.

Next day I returned to the town and was disappointed as usual in obtaining money. So after spending the day looking at the plants in the gardens of the fine residences and town squares, I returned to my graveyard home. That I might not be observed and suspected of hiding, as if I had committed a crime, I always went home after dark, and one night as I lay down in my moss nest I felt some cold-blooded creature in it; whether a snake or simply a frog or toad I do not know, but instinctively, instead of drawing back my hand, I grasped the poor creature and threw it over the tops of the bushes. That was the only significant disturbance or fright that I got.

In the morning everything seemed divine. Only squirrels, sunbeams, and birds came about me. I was awakened every morning by these little singers after they discovered my nest. Instead of serenely singing their morning songs they at first came within two or three feet of the hut, and, looking in at me through the leaves, chattered and scolded in half-angry, half-wondering tones. The crowd constantly increased, attracted by the disturbance. Thus I began to get acquainted with my bird neigh-

bors in this blessed wilderness, and after they learned that I meant them no ill they scolded less and sang more.

After five days of this graveyard life I saw that even with living on three or four cents a day my last twenty-five cents would soon be spent, and after trying again and again unsuccessfully to find some employment, began to think that I must strike farther out into the country, but still within reach of town, until I came to some grain or rice field that had not yet been harvested, trusting that I could live indefinitely on toasted or raw corn, or rice.

By this time I was becoming faint, and in making the journey to the town was alarmed to find myself growing staggery and giddy. The ground ahead seemed to be rising up in front of me, and the little streams in the ditches on the sides of the road seemed to be flowing up hill. Then I realized that I was becoming dangerously hungry and became more than ever anxious to receive that money package.

To my delight this fifth or sixth morning when I inquired if the money package had come the clerk replied that it had, but that he could not deliver it without my being identified. I said, "Well, here! read my brother's letter," handing it to him. "It states the amount in the package, where it came from,

the day it was put into the office at Portage City, and I should think that would be enough." He said, "No, that is not enough. How do I know that this letter is yours? You may have stolen it. How do I know that you are John Muir?"

I said, "Well, don't you see that this letter indicates that I am a botanist? For in it my brother says, 'I hope you are having a good time and finding many new plants.' Now, you say that I might have stolen this letter from John Muir, and in that way have become aware of there being a money package to arrive from Portage for him. But the letter proves that John Muir must be a botanist, and though, as you say, his letter might have been stolen, it would hardly be likely that the robber would be able to steal John Muir's knowledge of botany. Now I suppose, of course, that you have been to school and know something of botany. Examine me and see if I know anything about it."

At this he laughed good-naturedly, evidently feeling the force of my argument, and, perhaps, pitying me on account of looking pale and hungry, he turned and rapped at the door of a private office, — probably the Manager's, — called him out and said, "Mr. So and So, here is a man who has inquired every day for the

last week or so for a money package from Portage, Wisconsin. He is a stranger in the city with no one to identify him. He states correctly the amount and the name of the sender. He has shown me a letter which indicates that Mr. Muir is a botanist, and that although a traveling companion may have stolen Mr. Muir's letter, he could not have stolen his botany, and requests us to examine him."

The head official smiled, took a good stare at my face, waved his hand, and said, "Let him have it." Gladly I pocketed my money, and had not gone along the street more than a few rods before I met a very large negro woman with a tray of gingerbread, in which I immediately invested some of my new wealth, and walked rejoicingly, munching along the street, making no attempt to conceal the pleasure I had in eating. Then, still hunting for more food, I found a sort of eating-place in a market and had a large regular meal on top of the gingerbread! Thus my "marching through Georgia" terminated handsomely in a jubilee of bread.

CHAPTER V

THROUGH FLORIDA SWAMPS AND FORESTS

Of the people of the States that I have now passed, I best like the Georgians. They have charming manners, and their dwellings are mostly larger and better than those of adjacent States. However costly or ornamental their homes or their manners, they do not, like those of the New Englander, appear as the fruits of intense and painful sacrifice and training, but are entirely divested of artificial weights and measures, and seem to pervade and twine about their characters as spontaneous growths with the durability and charm of living nature.

In particular, Georgians, even the commonest, have a most charmingly cordial way of saying to strangers, as they proceed on their journey, "I wish you well, sir." The negroes of Georgia, too, are extremely mannerly and polite, and appear always to be delighted to find opportunity for obliging anybody.

Athens contains many beautiful residences. I never before saw so much about a home that was so evidently done for beauty only, although this is by no means a universal characteristic of Georgian homes. Nearly all well-to-do farmers'

families in Georgia and Tennessee spin and weave their own cloth. This work is almost all done by the mothers and daughters and consumes much of their time.

The traces of war are apparent not only on the broken fields, burnt fences, mills, and woods ruthlessly slaughtered, but also on the countenances of the people. A few years after a forest has been burned another generation of bright and happy trees arises, in purest, freshest vigor; only the old trees, wholly or half dead, bear marks of the calamity. So with the people of this war-field. Happy, unscarred, and unclouded youth is growing up around the aged, half-consumed, and fallen parents, who bear in sad measure the ineffaceable marks of the farthest-reaching and most infernal of all civilized calamities.

Since the commencement of my floral pilgrimage I have seen much that is not only new, but altogether unallied, unacquainted with the plants of my former life. I have seen magnolias, tupelo, live-oak, Kentucky oak, tillandsia, long-leafed pine, palmetto, schrankia, and whole forests of strange trees and vine-tied thickets of blooming shrubs; whole meadowfuls of magnificent bamboo and lakefuls of lilies, all new to me; yet I still press eagerly on to Florida as the special home of the tropical

plants I am looking for, and I feel sure I shall not be disappointed.

The same day on which the money arrived I took passage on the steamship Sylvan Shore for Fernandina, Florida. The daylight part of this sail along the coast of Florida was full of novelty, and by association awakened memories of my Scottish days at Dunbar on the Firth of Forth.

On board I had civilized conversation with a Southern planter on topics that are found floating in the mind of every white man down here who has a single thought. I also met a brother Scotchman, who was especially interesting and had some ideas outside of Southern politics. Altogether my half-day and night on board the steamer were pleasant, and carried me past a very sickly, entangled, overflowed, and unwalkable piece of forest.

It is pretty well known that a short geological time ago the ocean covered the sandy level margin, extending from the foot of the Alleghanies to the present coast-line, and in receding left many basins for lakes and swamps. The land is still encroaching on the sea, and it does so not evenly, in a regular line, but in fringing lagoons and inlets and dotlike coral islands.

It is on the coast strip of isles and peninsulas

that sea-island cotton is grown. Some of these small islands are afloat, anchored only by the roots of mangroves and rushes. For a few hours our steamer sailed in the open sea, exposed to its waves, but most of the time she threaded her way among the lagoons, the home of alligators and countless ducks and waders.

October 15. To-day, at last, I reached Florida, the so-called "Land of Flowers," that I had so long waited for, wondering if after all my longings and prayers would be in vain, and I should die without a glimpse of the flowery Canaan. But here it is, at the distance of a few yards! — a flat, watery, reedy coast, with clumps of mangrove and forests of moss-dressed, strange trees appearing low in the distance. The steamer finds her way among the reedy islands like a duck, and I step on a rickety wharf. A few steps more take me to a rickety town, Fernandina. I discover a baker, buy some bread, and without asking a single question, make for the shady, gloomy groves.

In visiting Florida in dreams, of either day or night, I always came suddenly on a close forest of trees, every one in flower, and bent down and entangled to network by luxuriant, bright-blooming vines, and over all a flood of bright sunlight. But such was not the gate by which I entered the promised land. Salt

marshes, belonging more to the sea than to the land; with groves here and there, green and unflowered, sunk to the shoulders in sedges and rushes; with trees farther back, ill defined in their boundary, and instead of rising in hilly waves and swellings, stretching inland in low water-like levels.

We were all discharged by the captain of the steamer without breakfast, and, after meeting and examining the new plants that crowded about me, I threw down my press and little bag beneath a thicket, where there was a dry spot on some broken heaps of grass and roots, something like a deserted muskrat house, and applied myself to my bread breakfast. Everything in earth and sky had an impression of strangeness; not a mark of friendly recognition, not a breath, not a spirit whisper of sympathy came from anything about me, and of course I was lonely. I lay on my elbow eating my bread, gazing, and listening to the profound strangeness.

While thus engaged I was startled from these gatherings of melancholy by a rustling sound in the rushes behind me. Had my mind been in health, and my body not starved, I should only have turned calmly to the noise. But in this half-starved, unfriended condition I could have no healthy thought, and I at once believed

that the sound came from an alligator. I fancied I could feel the stroke of his long notched tail, and could see his big jaws and rows of teeth, closing with a springy snap on me, as I had seen in pictures.

Well, I don't know the exact measure of my fright either in time or pain, but when I did come to a knowledge of the truth, my man-eating alligator became a tall white crane, handsome as a minister from spirit land — "only that." I was ashamed and tried to excuse myself on account of Bonaventure anxiety and hunger.

Florida is so watery and vine-tied that pathless wanderings are not easily possible in any direction. I started to cross the State by a gap hewn for the locomotive, walking sometimes between the rails, stepping from tie to tie, or walking on the strip of sand at the sides, gazing into the mysterious forest, Nature's own. It is impossible to write the dimmest picture of plant grandeur so redundant, unfathomable.

Short was the measure of my walk to-day. A new, canelike grass, or big lily, or gorgeous flower belonging to tree or vine, would catch my attention, and I would throw down my bag and press and splash through the coffee-brown water for specimens. Frequently I sank deeper and deeper until compelled to turn back and

make the attempt in another and still another place. Oftentimes I was tangled in a labyrinth of armed vines like a fly in a spider-web. At all times, whether wading or climbing a tree for specimens of fruit, I was overwhelmed with the vastness and unapproachableness of the great guarded sea of sunny plants.

Magnolia grandiflora I had seen in Georgia; but its home, its better land, is here. Its large dark-green leaves, glossy bright above and rusty brown beneath, gleam and mirror the sunbeams most gloriously among countless flower-heaps of the climbing, smothering vines. It is bright also in fruit and more tropical in form and expression than the orange. It speaks itself a prince among its fellows.

Occasionally I came to a little strip of open sand, planted with pine (*Pinus palustris* or *Cubensis*). Even these spots were mostly wet, though lighted with free sunshine, and adorned with purple liatris, and orange-colored *Osmunda cinnamomea*. But the grandest discovery of this great wild day was the palmetto.

I was meeting so many strange plants that I was much excited, making many stops to get specimens. But I could not force my way far through the swampy forest, although so tempting and full of promise. Regardless of water snakes or insects, I endeavored repeatedly to

force a way through the tough vine-tangles, but seldom succeeded in getting farther than a few hundred yards.

It was while feeling sad to think that I was only walking on the edge of the vast wood, that I caught sight of the first palmetto in a grassy place, standing almost alone. A few magnolias were near it, and bald cypresses, but it was not shaded by them. They tell us that plants are perishable, soulless creatures, that only man is immortal, etc.; but this, I think, is something that we know very nearly nothing about. Anyhow, this palm was indescribably impressive and told me grander things than I ever got from human priest.

This vegetable has a plain gray shaft, round as a broom-handle, and a crown of varnished channeled leaves. It is a plainer plant than the humblest of Wisconsin oaks; but, whether rocking and rustling in the wind or poised thoughtful and calm in the sunshine, it has a power of expression not excelled by any plant high or low that I have met in my whole walk thus far.

This, my first specimen, was not very tall, only about twenty-five feet high, with fifteen or twenty leaves, arching equally and evenly all around. Each leaf was about ten feet in length, the blade four feet, the stalk six. The leaves are channeled like half-open clams and are highly

polished, so that they reflect the sunlight like glass. The undeveloped leaves on the top stand erect, closely folded, all together forming an oval crown over which the tropic light is poured and reflected from its slanting mirrors in sparks and splinters and long-rayed stars.

I am now in the hot gardens of the sun, where the palm meets the pine, longed and prayed for and often visited in dreams, and, though lonely to-night amid this multitude of strangers, strange plants, strange winds blowing gently, whispering, cooing, in a language I never learned, and strange birds also, everything solid or spiritual full of influences that I never before felt, yet I thank the Lord with all my heart for his goodness in granting me admission to this magnificent realm.

October 16. Last evening when I was in the trackless woods, the great mysterious night becoming more mysterious in the thickening darkness, I gave up hope of finding food or a house bed, and searched only for a dry spot on which to sleep safely hidden from wild, runaway negroes. I walked rapidly for hours in the wet, level woods, but not a foot of dry ground could I find. Hollow-voiced owls were calling without intermission. All manner of night sounds came from strange insects and beasts, one by one, or crowded together. All had a home

but me. Jacob on the dry plains of Padan-aram, with a stone pillow, must have been comparatively happy.

When I came to an open place where pines grew it was about ten o'clock, and I thought that now at last I would find dry ground. But even the sandy barren was wet, and I had to grope in the dark a long time, feeling the ground with my hands when my feet ceased to plash, before I at last discovered a little hillock dry enough to lie down on. I ate a piece of bread that I fortunately had in my bag, drank some of the brown water about my precious hillock, and lay down. The noisiest of the unseen witnesses around me were the owls, who pronounced their gloomy speeches with profound emphasis, but did not prevent the coming of sleep to heal weariness.

In the morning I was cold and wet with dew, and I set out breakfastless. Flowers and beauty I had in abundance, but no bread. A serious matter is this bread which perishes, and, could it be dispensed with, I doubt if civilization would ever see me again. I walked briskly, watching for a house, as well as the grand assemblies of novel plants.

Near the middle of the forenoon I came to a shanty where a party of loggers were getting out long pines for ship spars. They were the

wildest of all the white savages I have met. The long-haired ex-guerrillas of the mountains of Tennessee and North Carolina are uncivilized fellows; but for downright barbarism these Florida loggers excel. Nevertheless, they gave me a portion of their yellow pork and hominy without either apparent hospitality or a grudge, and I was glad to escape to the forest again.

A few hours later I dined with three men and three dogs. I was viciously attacked by the latter, who undertook to undress me with their teeth. I was nearly dragged down backward, but escaped unbitten. Liver pie, mixed with sweet potatoes and fat duff, was set before me, and after I had finished a moderate portion, one of the men, turning to his companion, remarked: "Wall, I guess that man quit eatin' 'cause he had nothin' more to eat. I'll get him more potato."

Arrived at a place on the margin of a stagnant pool where an alligator had been rolling and sunning himself. "See," said a man who lived here, "see, what a track that is! He must have been a mighty big fellow. Alligators wallow like hogs and like to lie in the sun. I'd like a shot at that fellow." Here followed a long recital of bloody combats with the scaly enemy, in many of which he had, of course, taken an important part. Alligators are said to be ex-

tremely fond of negroes and dogs, and naturally the dogs and negroes are afraid of them.

Another man that I met to-day pointed to a shallow, grassy pond before his door. "There," said he, "I once had a tough fight with an alligator. He caught my dog. I heard him howling, and as he was one of my best hunters I tried hard to save him. The water was only about knee-deep and I ran up to the alligator. It was only a small one about four feet long, and was having trouble in its efforts to drown the dog in the shallow water. I scared him and made him let go his hold, but before the poor crippled dog could reach the shore he was caught again, and when I went at the alligator with a knife, it seized my arm. If it had been a little stronger it might have eaten me instead of my dog."

I never in all my travels saw more than one, though they are said to be abundant in most of the swamps, and frequently attain a length of nine or ten feet. It is reported, also, that they are very savage, oftentimes attacking men in boats. These independent inhabitants of the sluggish waters of this low coast cannot be called the friends of man, though I heard of one big fellow that was caught young and was partially civilized and made to work in harness.

Many good people believe that alligators

were created by the Devil, thus accounting for their all-consuming appetite and ugliness. But doubtless these creatures are happy and fill the place assigned them by the great Creator of us all. Fierce and cruel they appear to us, but beautiful in the eyes of God. They, also, are his children, for He hears their cries, cares for them tenderly, and provides their daily bread.

The antipathies existing in the Lord's great animal family must be wisely planned, like balanced repulsion and attraction in the mineral kingdom. How narrow we selfish, conceited creatures are in our sympathies! how blind to the rights of all the rest of creation! With what dismal irreverence we speak of our fellow mortals! Though alligators, snakes, etc., naturally repel us, they are not mysterious evils. They dwell happily in these flowery wilds, are part of God's family, unfallen, undepraved, and cared for with the same species of tenderness and love as is bestowed on angels in heaven or saints on earth.

I think that most of the antipathies which haunt and terrify us are morbid productions of ignorance and weakness. I have better thoughts of those alligators now that I have seen them at home. Honorable representatives of the great saurians of an older creation, may you long enjoy your lilies and rushes, and be

blessed now and then with a mouthful of terror-stricken man by way of dainty!

Found a beautiful lycopodium to-day, and many grasses in the dry sunlit places called "barrens," "hummocks," "savannas," etc. Ferns also are abundant. What a flood of heat and light is daily poured out on these beautiful openings and intertangled woods! "The land of the sunny South," we say, but no part of our diversified country is more shaded and covered from sunshine. Many a sunny sheet of plain and prairie break the continuity of the forests of the North and West, and the forests themselves are mostly lighted also, pierced with direct ray lances, or [the sunlight] passing to the earth and the lowly plants in filtered softness through translucent leaves. But in the dense Florida forests sunlight cannot enter. It falls on the evergreen roof and rebounds in long silvery lances and flashy spray. In many places there is not light sufficient to feed a single green leaf on these dark forest floors. All that the eye can reach is just a maze of tree stems and crooked leafless vine strings. All the flowers, all the verdure, all the glory is up in the light.

The streams of Florida are still young, and in many places are untraceable. I expected to find these streams a little discolored from the

vegetable matter that I knew they must contain, and I was sure that in so flat a country I should not find any considerable falls or long rapids. The streams of upper Georgia are almost unapproachable in some places on account of luxuriant bordering vines, but the banks are nevertheless high and well defined. Florida streams are not yet possessed of banks and braes and definite channels. Their waters in deep places are black as ink, perfectly opaque, and glossy on the surface as if varnished. It often is difficult to ascertain which way they are flowing or creeping, so slowly and so widely do they circulate through the tree-tangles and swamps of the woods. The flowers here are strangers to me, but not more so than the rivers and lakes. Most streams appear to travel through a country with thoughts and plans for something beyond. But those of Florida are at home, do not appear to be traveling at all, and seem to know nothing of the sea.

October 17. Found a small, silvery-leafed magnolia, a bush ten feet high. Passed through a good many miles of open level pine barrens, as bounteously lighted as the "openings" of Wisconsin. The pines are rather small, are planted sparsely and pretty evenly on these sandy flats not long risen from the sea. Scarcely a specimen of any other tree is to be found as-

sociated with the pine. But there are some thickets of the little saw palmettoes and a magnificent assemblage of tall grasses, their splendid panicles waving grandly in the warm wind, and making low tuneful changes in the glistening light that is flashed from their bent stems.

Not a pine, not a palm, in all this garden excels these stately grass plants in beauty of wind-waving gestures. Here are panicles that are one mass of refined purple; others that have flowers as yellow as ripe oranges, and stems polished and shining like steel wire. Some of the species are grouped in groves and thickets like trees, while others may be seen waving without any companions in sight. Some of them have wide-branching panicles like Kentucky oaks, others with a few tassels of spikelets drooping from a tall, leafless stem. But all of them are beautiful beyond the reach of language. I rejoice that God has "so clothed the grass of the field." How strangely we are blinded to beauty and color, form and motion, by comparative size! For example, we measure grasses by our own stature and by the height and bulkiness of trees. But what is the size of the greatest man, or the tallest tree that ever overtopped a grass! Compared with other things in God's creation the difference is nothing. We all are only microscopic animalcula.

October 18. Am walking on land that is almost dry. The dead levels are interrupted here and there by sandy waves a few feet in height. It is said that not a point in all Florida is more than three hundred feet above sea-level — a country where but little grading is required for roads, but much bridging, and boring of many tunnels through forests.

Before reaching this open ground, in a lonely, swampy place in the woods, I met a large, muscular, brawny young negro, who eyed me with glaring, wistful curiosity. I was very thirsty at the time, and inquired of the man if there were any houses or springs near by where I could get a drink. "Oh, yes," he replied, still eagerly searching me with his wild eyes. Then he inquired where I came from, where I was going, and what brought me to such a wild country, where I was liable to be robbed, and perhaps killed.

"Oh, I am not afraid of any one robbing me," I said, "for I don't carry anything worth stealing." "Yes," said he, "but you can't travel without money." I started to walk on, but he blocked my way. Then I noticed that he was trembling, and it flashed upon me all at once that he was thinking of knocking me down in order to rob me. After glaring at my pockets as if searching for weapons, he stammered in

a quavering voice, "Do you carry shooting-irons?" His motives, which I ought to have noted sooner, now were apparent to me. Though I had no pistol, I instinctively threw my hand back to my pistol pocket and, with my eyes fixed on his, I marched up close to him and said, "I allow people to find out if I am armed or not." Then he quailed, stepped aside, and allowed me to pass, for fear of being shot. This was evidently a narrow escape.

A few miles farther on I came to a cotton-field, to patches of sugar cane, carefully fenced, and some respectable-looking houses with gardens. These little fenced fields look as if they were intended to be for plants what cages are for birds. Discovered a large, treelike cactus in a dooryard; a small species was abundant on the sand-hillocks. Reached Gainesville late in the night.

When within three or four miles of the town I noticed a light off in the pine woods. As I was very thirsty, I thought I would venture toward it with the hope of obtaining water. In creeping cautiously and noiselessly through the grass to discover whether or no it was a camp of robber negroes, I came suddenly in full view of the best lighted and most primitive of all the domestic establishments I have yet seen in town or grove. There was, first of all, a big,

glowing log fire, illuminating the overleaning bushes and trees, bringing out leaf and spray with more than noonday distinctness, and making still darker the surrounding wood. In the center of this globe of light sat two negroes. I could see their ivory gleaming from the great lips, and their smooth cheeks flashing off light as if made of glass. Seen anywhere but in the South, the glossy pair would have been taken for twin devils, but here it was only a negro and his wife at their supper.

I ventured forward to the radiant presence of the black pair, and, after being stared at with that desperate fixedness which is said to subdue the lion, I was handed water in a gourd from somewhere out of the darkness. I was standing for a moment beside the big fire, looking at the unsurpassable simplicity of the establishment, and asking questions about the road to Gainesville, when my attention was called to a black lump of something lying in the ashes of the fire. It seemed to be made of rubber; but ere I had time for much speculation the woman bent wooingly over the black object and said with motherly kindness, "Come, honey, eat yo' hominy."

At the sound of "hominy" the rubber gave strong manifestations of vitality and proved to be a burly little negro boy, rising from the earth

naked as to the earth he came. Had he emerged from the black muck of a marsh, we might easily have believed that the Lord had manufactured him like Adam direct from the earth.

Surely, thought I, as I started for Gainesville, surely I am now coming to the tropics, where the inhabitants wear nothing but their own skins. This fashion is sufficiently simple, — "no troublesome disguises," as Milton calls clothing, — but it certainly is not quite in harmony with Nature. Birds make nests and nearly all beasts make some kind of bed for their young; but these negroes allow their younglings to lie nestless and naked in the dirt.

Gainesville is rather attractive — an oasis in the desert, compared with other villages. It gets its life from the few plantations located about it on dry ground that rises islandlike a few feet above the swamps. Obtained food and lodging at a sort of tavern.

October 19. Dry land nearly all day. Encountered limestone, flint, coral, shells, etc. Passed several thrifty cotton plantations with comfortable residences, contrasting sharply with the squalid hovels of my first days in Florida. Found a single specimen of a handsome little plant, which at once, in some mysterious way, brought to mind a young friend in Indiana. How wonderfully our thoughts and

impressions are stored! There is that in the glance of a flower which may at times control the greatest of creation's braggart lords.

The magnolia is much more abundant here. It forms groves and almost exclusively frosts the edges of ponds and the banks of streams. The easy, dignified simplicity of this noble tree, its plain leaf endowed with superb richness of color and form, its open branches festooned with graceful vines and tillandsia, its showy crimson fruit, and its magnificent fragrant white flowers make *Magnolia grandiflora* the most lovable of Florida trees.

Discovered a great many beautiful polygonums, petalostemons, and yellow leguminous vines. Passed over fine sunny areas of the long-leafed and Cuban pines, which were everywhere accompanied by fine grasses and solidagoes. Wild orange groves are said to be rather common here, but I have seen only limes growing wild in the woods.

Came to a hut about noon, and, being weary and hungry, asked if I could have dinner. After serious consultation I was told to wait, that dinner would soon be ready. I saw only the man and his wife. If they had children they may have been hidden in the weeds on account of nakedness. Both were suffering from malarial fever, and were very dirty. But they did

not appear to have any realizing sense of discomfort from either the one or the other of these misfortunes. The dirt which encircled the countenances of these people did not, like the common dirt of the North, stick on the skin in bold union like plaster or paint, but appeared to stand out a little on contact like a hazy, misty, half-aerial mud envelope, the most diseased and incurable dirt that I ever saw, evidently desperately chronic and hereditary.

It seems impossible that children from such parents could ever be clean. Dirt and disease are dreadful enough when separate, but combined are inconceivably horrible. The neat cottage with a fragrant circumference of thyme and honeysuckle is almost unknown here. I have seen dirt on garments regularly stratified, the various strata no doubt indicating different periods of life. Some of them, perhaps, were annual layers, furnishing, like those of trees, a means of determining the age. Man and other civilized animals are the only creatures that ever become dirty.

Slept in the barrens at the side of a log. Suffered from cold and was drenched with dew. What a comfort a companion would be in the dark loneliness of such nights! Did not dare to make a fire for fear of discovery by robber

negroes, who, I was warned, would kill a man for a dollar or two. Had a long walk after nightfall, hoping to discover a house. Became very thirsty and often was compelled to drink from slimy pools groped for in the grass, with the fear of alligators before my eyes.

October 20. Swamp very dense during this day's journey. Almost one continuous sheet of water covered with aquatic trees and vines. No stream that I crossed to-day appeared to have the least idea where it was going. Saw an alligator plash into the sedgy brown water by the roadside from an old log.

Arrived at night at the house of Captain Simmons, one of the very few scholarly, intelligent men that I have met in Florida. He had been an officer in the Confederate army in the war and was, of course, prejudiced against the North, but polite and kind to me, nevertheless. Our conversation, as we sat by the light of the fire, was on the one great question, slavery and its concomitants. I managed, however, to switch off to something more congenial occasionally — the birds of the neighborhood, the animals, the climate, and what spring, summer, and winter are like in these parts.

About the climate I could not get much information, as he had always lived in the South and, of course, saw nothing extraordinary in

weather to which he had always been accustomed. But in speaking of animals, he at once became enthusiastic and told many stories of hairbreadth escapes, in the woods about his house, from bears, hungry alligators, wounded deer, etc. "And now," said he, forgetting in his kindness that I was from the hated North, "you must stay with me a few days. Deer are abundant. I will lend you a rifle and we'll go hunting. I hunt whenever I wish venison, and I can get it about as easily from the woods near by as a shepherd can get mutton out of his flock. And perhaps we will see a bear, for they are far from scarce here, and there are some big gray wolves, too."

I expressed a wish to see some large alligators. "Oh, well," said he, "I can take you where you will see plenty of those fellows, but they are not much to look at. I once got a good look at an alligator that was lying at the bottom of still, transparent water, and I think that his eyes were the most impressively cold and cruel of any animal I have seen. Many alligators go out to sea among the keys. These sea alligators are the largest and most ferocious, and sometimes attack people by trying to strike them with their tails when they are out fishing in boats.

"Another thing I wish you to see," he con-

tinued, "is a palmetto grove on a rich hummock a few miles from here. The grove is about seven miles in length by three in breadth. The ground is covered with long grass, uninterrupted with bushes or other trees. It is the finest grove of palmettoes I have ever seen and I have oftentimes thought that it would make a fine subject for an artist."

I concluded to stop — more to see this wonderful palmetto hummock than to hunt. Besides, I was weary and the prospect of getting a little rest was a tempting consideration after so many restless nights and long, hard walks by day.

October 21. Having outlived the sanguinary hunters' tales of my loquacious host, and breakfasted sumptuously on fresh venison and "caller" fish from the sea, I set out for the grand palm grove. I had seen these dazzling sun-children in every day of my walk through Florida, but they were usually standing solitary, or in groups of three or four; but to-day I was to see them by the mile. The captain led me a short distance through his corn-field and showed me a trail which would conduct me to the palmy hummock. He pointed out the general direction, which I noted upon my compass.

"Now," said he, "at the other side of my

farthest field you will come to a jungle of cat-briers, but will be able to pass them if you manage to keep the trail. You will find that the way is not by any means well marked, for in passing through a broad swamp the trail makes a good many abrupt turns to avoid deep water, fallen trees, or impenetrable thickets. You will have to wade a good deal, and in passing the water-covered places you will have to watch for the point where the trail comes out on the opposite side."

I made my way through the briers, which in strength and ferocity equaled those of Tennessee, followed the path through all of its dim waverings, waded the many opposing pools, and, emerging suddenly from the leafy darkness of the swamp forest, at last stood free and unshaded on the border of the sun-drenched palm garden. It was a level area of grasses and sedges, smooth as a prairie, well starred with flowers, and bounded like a clearing by a wall of vine-laden trees.

The palms had full possession and appeared to enjoy their sunny home. There was no jostling, no apparent effort to outgrow each other. Abundance of sunlight was there for every crown, and plenty to fall between. I walked enchanted in their midst. What a landscape! Only palms as far as the eye could

reach! Smooth pillars rising from the grass, each capped with a sphere of leaves, shining in the sun as bright as a star. The silence and calm were as deep as ever I found in the dark, solemn pine woods of Canada, and that contentment which is an attribute of the best of God's plant people was as impressively felt in this alligator wilderness as in the homes of the happy, healthy people of the North.

The admirable Linnæus calls palms "the princes of the vegetable world." I know that there is grandeur and nobility in their character, and that there are palms nobler far than these. But in rank they appear to me to stand below both the oak and the pine. The motions of the palms, their gestures, are not very graceful. They appear to best advantage when perfectly motionless in the noontide calm and intensity of light. But they rustle and rock in the evening wind. I have seen grasses waving with far more dignity. And when our northern pines are waving and bowing in sign of worship with the winter storm-winds, where is the prince of palms that could have the conscience to demand their homage!

Members of this palm congregation were of all sizes with respect to their stems; but their glorious crowns were all alike. In development there is only the terminal bud to con-

sider. The young palm of this species emerges from the ground in full strength, one cluster of leaves arched every way, making a sphere about ten or twelve feet in diameter. The outside lower leaves gradually become yellow, wither, and break off, the petiole snapping squarely across, a few inches from the stem. New leaves develop with wonderful rapidity. They stand erect at first, but gradually arch outward as they expand their blades and lengthen their petioles.

New leaves arise constantly from the center of the grand bud, while old ones break away from the outside. The splendid crowns are thus kept about the same size, perhaps a little larger than in youth while they are yet on the ground. As the development of the central axis goes on, the crown is gradually raised on a stem of about six to twelve inches in diameter. This stem is of equal thickness at the top and at the bottom and when young is roughened with the broken petioles. But these petiole-stumps fall off and disappear as they become old, and the trunk becomes smooth as if turned in a lathe.

After some hours in this charming forest I started on the return journey before night, on account of the difficulties of the swamp and the brier patch. On leaving the palmettoes and

entering the vine-tangled, half-submerged forest I sought long and carefully, but in vain, for the trail, for I had drifted about too incautiously in search of plants. But, recollecting the direction that I had followed in the morning, I took a compass bearing and started to penetrate the swamp in a direct line.

Of course I had a sore weary time, pushing through the tanglement of falling, standing, and half-fallen trees and bushes, to say nothing of knotted vines as remarkable for their efficient army of interlocking and lancing prickers as for their length and the number of their blossoms.

But these were not my greatest obstacles, nor yet the pools and lagoons full of dead leaves and alligators. It was the army of cat-briers that I most dreaded. I knew that I would have to find the narrow slit of a lane before dark or spend the night with mosquitoes and alligators, without food or fire. The entire distance was not great, but a traveler in open woods can form no idea of the crooked and strange difficulties of pathless locomotion in these thorny, watery Southern tangles, especially in pitch darkness. I struggled hard and kept my course, leaving the general direction only when drawn aside by a plant of extraordinary promise, that I wanted for a specimen, or when I had to make

the half-circuit of a pile of trees, or of a deep lagoon or pond.

In wading I never attempted to keep my clothes dry, because the water was too deep, and the necessary care would consume too much time. Had the water that I was forced to wade been transparent it would have lost much of its difficulty. But as it was, I constantly expected to plant my feet on an alligator, and therefore proceeded with strained caution. The opacity of the water caused uneasiness also on account of my inability to determine its depth. In many places I was compelled to turn back, after wading forty or fifty yards, and to try again a score of times before I succeeded in getting across a single lagoon.

At length, after miles of wading and wallowing, I arrived at the grand cat-brier encampment which guarded the whole forest in solid phalanx, unmeasured miles up and down across my way. Alas! the trail by which I had crossed in the morning was not to be found, and night was near. In vain I scrambled back and forth in search of an opening. There was not even a strip of dry ground on which to rest. Everywhere the long briers arched over to the vines and bushes of the watery swamp, leaving no standing-ground between them. I began to think of building some sort of a scaffold in a

tree to rest on through the night, but concluded to make one more desperate effort to find the narrow track.

After calm, concentrated recollection of my course, I made a long exploration toward the left down the brier line, and after scrambling a mile or so, perspiring and bleeding, I discovered the blessed trail and escaped to dry land and the light. Reached the captain at sundown. Dined on milk and johnny-cake and fresh venison. Was congratulated on my singular good fortune and woodcraft, and soon after supper was sleeping the deep sleep of the weary and the safe.

October 22. This morning I was easily prevailed upon by the captain and an ex-judge, who was rusticating here, to join in a deer hunt. Had a delightful ramble in the long grass and flowery barrens. Started one deer but did not draw a single shot. The captain, the judge, and myself stood at different stations where the deer was expected to pass, while a brother of the captain entered the woods to arouse the game from cover. The one deer that he started took a direction different from any which this particular old buck had ever been known to take in times past, and in so doing was cordially cursed as being the "d——dest deer that ever ran unshot." To me it appeared as "d——dest" work to slaughter God's cattle for sport. "They

were made for us," say these self-approving preachers; "for our food, our recreation, or other uses not yet discovered." As truthfully we might say on behalf of a bear, when he deals successfully with an unfortunate hunter, "Men and other bipeds were made for bears, and thanks be to God for claws and teeth so long."

Let a Christian hunter go to the Lord's woods and kill his well-kept beasts, or wild Indians, and it is well; but let an enterprising specimen of these proper, predestined victims go to houses and fields and kill the most worthless person of the vertical godlike killers, — oh! that is horribly unorthodox, and on the part of the Indians atrocious murder! Well, I have precious little sympathy for the selfish propriety of civilized man, and if a war of races should occur between the wild beasts and Lord Man I would be tempted to sympathize with the bears.

CHAPTER VI

CEDAR KEYS

October 23. To-day I reached the sea. While I was yet many miles back in the palmy woods, I caught the scent of the salt sea breeze which, although I had so many years lived far from sea breezes, suddenly conjured up Dunbar, its rocky coast, winds and waves; and my whole childhood, that seemed to have utterly vanished in the New World, was now restored amid the Florida woods by that one breath from the sea. Forgotten were the palms and magnolias and the thousand flowers that enclosed me. I could see only dulse and tangle, long-winged gulls, the Bass Rock in the Firth of Forth, and the old castle, schools, churches, and long country rambles in search of birds' nests. I do not wonder that the weary camels coming from the scorching African deserts should be able to scent the Nile.

How imperishable are all the impressions that ever vibrate one's life! We cannot forget anything. Memories may escape the action of will, may sleep a long time, but when stirred by the right influence, though that influence be

light as a shadow, they flash into full stature and life with everything in place. For nineteen years my vision was bounded by forests, but to-day, emerging from a multitude of tropical plants, I beheld the Gulf of Mexico stretching away unbounded, except by the sky. What dreams and speculative matter for thought arose as I stood on the strand, gazing out on the burnished, treeless plain!

But now at the seaside I was in difficulty. I had reached a point that I could not ford, and Cedar Keys had an empty harbor. Would I proceed down the peninsula to Tampa and Key West, where I would be sure to find a vessel for Cuba, or would I wait here, like Crusoe, and pray for a ship. Full of these thoughts, I stepped into a little store which had a considerable trade in quinine and alligator and rattlesnake skins, and inquired about shipping, means of travel, etc.

The proprietor informed me that one of several sawmills near the village was running, and that a schooner chartered to carry a load of lumber to Galveston, Texas, was expected at the mills for a load. This mill was situated on a tongue of land a few miles along the coast from Cedar Keys, and I determined to see Mr. Hodgson, the owner, to find out particulars about the expected schooner, the time she

would take to load, whether I would be likely to obtain passage on her, etc.

Found Mr. Hodgson at his mill. Stated my case, and was kindly furnished the desired information. I determined to wait the two weeks likely to elapse before she sailed, and go on her to the flowery plains of Texas, from any of whose ports, I fancied, I could easily find passage to the West Indies. I agreed to work for Mr. Hodgson in the mill until I sailed, as I had but little money. He invited me to his spacious house, which occupied a shell hillock and commanded a fine view of the Gulf and many gems of palmy islets, called "keys," that fringe the shore like huge bouquets — not too big, however, for the spacious waters. Mr. Hodgson's family welcomed me with that open, unconstrained cordiality which is characteristic of the better class of Southern people.

At the sawmill a new cover had been put on the main driving pulley, which, made of rough plank, had to be turned off and smoothed. He asked me if I was able to do this job and I told him that I could. Fixing a rest and making a tool out of an old file, I directed the engineer to start the engine and run slow. After turning down the pulley and getting it true, I put a keen edge on a common carpenter's plane, quickly finished the job, and was as-

signed a bunk in one of the employees' lodging-houses.

The next day I felt a strange dullness and headache while I was botanizing along the coast. Thinking that a bath in the salt water might refresh me, I plunged in and swam a little distance, but this seemed only to make me feel worse. I felt anxious for something sour, and walked back to the village to buy lemons.

Thus and here my long walk was interrupted. I thought that a few days' sail would land me among the famous flower-beds of Texas. But the expected ship came and went while I was helpless with fever. The very day after reaching the sea I began to be weighed down by inexorable leaden numbness, which I resisted and tried to shake off for three days, by bathing in the Gulf, by dragging myself about among the palms, plants, and strange shells of the shore, and by doing a little mill work. I did not fear any serious illness, for I never was sick before, and was unwilling to pay attention to my feelings.

But yet heavier and more remorselessly pressed the growing fever, rapidly gaining on my strength. On the third day after my arrival I could not take any nourishment, but craved acid. Cedar Keys was only a mile or two dis-

tant, and I managed to walk there to buy lemons. On returning, about the middle of the afternoon, the fever broke on me like a storm, and before I had staggered halfway to the mill I fell down unconscious on the narrow trail among dwarf palmettoes.

When I awoke from the hot fever sleep, the stars were shining, and I was at a loss to know which end of the trail to take, but fortunately, as it afterwards proved, I guessed right. Subsequently, as I fell again and again after walking only a hundred yards or so, I was careful to lie with my head in the direction in which I thought the mill was. I rose, staggered, and fell, I know not how many times, in delirious bewilderment, gasping and throbbing with only moments of consciousness. Thus passed the hours till after midnight, when I reached the mill lodging-house.

The watchman on his rounds found me lying on a heap of sawdust at the foot of the stairs. I asked him to assist me up the steps to bed, but he thought my difficulty was only intoxication and refused to help me. The mill hands, especially on Saturday nights, often returned from the village drunk. This was the cause of the watchman's refusal. Feeling that I must get to bed, I made out to reach it on hands and knees, tumbled in after a desperate struggle,

and immediately became oblivious to everything.

I awoke at a strange hour on a strange day to hear Mr. Hodgson ask a watcher beside me whether I had yet spoken, and when he replied that I had not, he said: "Well, you must keep on pouring in quinine. That's all we can do." How long I lay unconscious I never found out, but it must have been many days. Some time or other I was moved on a horse from the mill quarters to Mr. Hodgson's house, where I was nursed about three months with unfailing kindness, and to the skill and care of Mr. and Mrs. Hodgson I doubtless owe my life. Through quinine and calomel — in sorry abundance — with other milder medicines, my malarial fever became typhoid. I had night sweats, and my legs became like posts of the temper and consistence of clay on account of dropsy. So on until January, a weary time.

As soon as I was able to get out of bed, I crept away to the edge of the wood, and sat day after day beneath a moss-draped live-oak, watching birds feeding on the shore when the tide was out. Later, as I gathered some strength, I sailed in a little skiff from one key to another. Nearly all the shrubs and trees here are evergreen, and a few of the smaller plants are in flower all winter. The principal trees on this

Cedar Key are the juniper, long-leafed pine, and live-oak. All of the latter, living and dead, are heavily draped with tillandsia, like those of Bonaventure. The leaf is oval, about two inches long, three fourths of an inch wide, glossy and dark green above, pale beneath. The trunk is usually much divided, and is extremely unwedgeable. The specimen on the opposite page [1] is growing in the dooryard of Mr. Hodgson's house. It is a grand old king, whose crown gleamed in the bright sky long ere the Spanish shipbuilders felled a single tree of this noble species.

The live-oaks of these keys divide empire with the long-leafed pine and palmetto, but in many places on the mainland there are large tracts exclusively occupied by them. Like the Bonaventure oaks they have the upper side of their main spreading branches thickly planted with ferns, grasses, small saw palmettoes, etc. There is also a dwarf oak here, which forms dense thickets. The oaks of this key are not, like those of the Wisconsin openings, growing on grassy slopes, but stand, sunk to the shoulders, in flowering magnolias, heathworts, etc.

During my long sojourn here as a convalescent I used to lie on my back for whole days

[1] Of the original journal.

beneath the ample arms of these great trees, listening to the winds and the birds. There is an extensive shallow on the coast, close by, which the receding tide exposes daily. This is the feeding-ground of thousands of waders of all sizes, plumage, and language, and they make a lively picture and noise when they gather at the great family board to eat their daily bread, so bountifully provided for them.

Their leisure in time of high tide they spend in various ways and places. Some go in large flocks to reedy margins about the islands and wade and stand about quarreling or making sport, occasionally finding a stray mouthful to eat. Some stand on the mangroves of the solitary shore, now and then plunging into the water after a fish. Some go long journeys inland, up creeks and inlets. A few lonely old herons of solemn look and wing retire to favorite oaks. It was my delight to watch those old white sages of immaculate feather as they stood erect drowsing away the dull hours between tides, curtained by long skeins of tillandsia. White-bearded hermits gazing dreamily from dark caves could not appear more solemn or more becomingly shrouded from the rest of their fellow beings.

One of the characteristic plants of these keys is the Spanish bayonet, a species of yucca,

about eight or ten feet in height, and with a trunk three or four inches in diameter when full grown. It belongs to the lily family and develops palmlike from terminal buds. The stout leaves are very rigid, sharp-pointed and bayonet-like. By one of these leaves a man might be as seriously stabbed as by an army bayonet, and woe to the luckless wanderer who dares to urge his way through these armed gardens after dark. Vegetable cats of many species will rob him of his clothes and claw his flesh, while dwarf palmettoes will saw his bones, and the bayonets will glide to his joints and marrow without the smallest consideration for Lord Man.

The climate of these precious islets is simply warm summer and warmer summer, corresponding in time with winter and summer in the North. The weather goes smoothly over the points of union betwixt the twin summers. Few of the storms are very loud or variable. The average temperature during the day, in December, was about sixty-five degrees in the shade, but on one day a little damp snow fell.

Cedar Keys is two and one half or three miles in diameter and its highest point is forty-four feet above mean tide-water. It is surrounded by scores of other keys, many of them looking like a clump of palms, arranged like a tasteful

bouquet, and placed in the sea to be kept fresh. Others have quite a sprinkling of oaks and junipers, beautifully united with vines. Still others consist of shells, with a few grasses and mangroves, circled with a rim of rushes. Those which have sedgy margins furnish a favorite retreat for countless waders and divers, especially for the pelicans that frequently whiten the shore like a ring of foam.

It is delightful to observe the assembling of these feathered people from the woods and reedy isles: herons white as wave-tops, or blue as the sky, winnowing the warm air on wide quiet wings; pelicans coming with baskets to fill, and the multitude of smaller sailors of the air, swift as swallows, gracefully taking their places at Nature's family table for their daily bread. Happy birds!

The mockingbird is graceful in form and a fine singer, plainly dressed, rather familiar in habits, frequently coming like robins to door-sills for crumbs — a noble fellow, beloved by everybody. Wild geese are abundant in winter, associated with brant, some species of which I have never seen in the North. Also great flocks of robins, mourning doves, bluebirds, and the delightful brown thrashers. A large number of the smaller birds are fine singers. Crows, too, are here, some of them cawing with

a foreign accent. The common bob-white quail I observed as far south as middle Georgia.

Lime Key, sketched on the opposite page, is a fair specimen of the Florida keys on this part of the coast. A fragment of cactus, *Opuntia*, sketched on another page,[1] is from the above-named key, and is abundant there. The fruit, an inch in length, is gathered, and made into a sauce, of which some people are fond. This species forms thorny, impenetrable thickets. One joint that I measured was fifteen inches long.

The mainland to Florida is less salubrious than the islands, but no portion of this coast, nor of the flat border which sweeps from Maryland to Texas, is quite free from malaria. All the inhabitants of this region, whether black or white, are liable to be prostrated by the ever-present fever and ague, to say nothing of the plagues of cholera and yellow fever that come and go suddenly like storms, prostrating the population and cutting gaps in it like hurricanes in woods.

The world, we are told, was made especially for man — a presumption not supported by all the facts. A numerous class of men are painfully astonished whenever they find anything, living or dead, in all God's universe, which they

[1] Of the original journal.

cannot eat or render in some way what they call useful to themselves. They have precise dogmatic insight of the intentions of the Creator, and it is hardly possible to be guilty of irreverence in speaking of *their* God any more than of heathen idols. He is regarded as a civilized, law-abiding gentleman in favor either of a republican form of government or of a limited monarchy; believes in the literature and language of England; is a warm supporter of the English constitution and Sunday schools and missionary societies; and is as purely a manufactured article as any puppet of a half-penny theater.

With such views of the Creator it is, of course, not surprising that erroneous views should be entertained of the creation. To such properly trimmed people, the sheep, for example, is an easy problem — food and clothing "for us," eating grass and daisies white by divine appointment for this predestined purpose, on perceiving the demand for wool that would be occasioned by the eating of the apple in the Garden of Eden.

In the same pleasant plan, whales are storehouses of oil for us, to help out the stars in lighting our dark ways until the discovery of the Pennsylvania oil wells. Among plants, hemp, to say nothing of the cereals, is a case of evident

destination for ships' rigging, wrapping packages, and hanging the wicked. Cotton is another plain case of clothing. Iron was made for hammers and ploughs, and lead for bullets; all intended for us. And so of other small handfuls of insignificant things.

But if we should ask these profound expositors of God's intentions, How about those man-eating animals — lions, tigers, alligators — which smack their lips over raw man? Or about those myriads of noxious insects that destroy labor and drink his blood? Doubtless man was intended for food and drink for all these? Oh, no! Not at all! These are unresolvable difficulties connected with Eden's apple and the Devil. Why does water drown its lord? Why do so many minerals poison him? Why are so many plants and fishes deadly enemies? Why is the lord of creation subjected to the same laws of life as his subjects? Oh, all these things are satanic, or in some way connected with the first garden.

Now, it never seems to occur to these far-seeing teachers that Nature's object in making animals and plants might possibly be first of all the happiness of each one of them, not the creation of all for the happiness of one. Why should man value himself as more than a small part of the one great unit of creation? And

what creature of all that the Lord has taken the pains to make is not essential to the completeness of that unit — the cosmos? The universe would be incomplete without man; but it would also be incomplete without the smallest transmicroscopic creature that dwells beyond our conceitful eyes and knowledge.

From the dust of the earth, from the common elementary fund, the Creator has made *Homo sapiens*. From the same material he has made every other creature, however noxious and insignificant to us. They are earthborn companions and our fellow mortals. The fearfully good, the orthodox, of this laborious patchwork of modern civilization cry "Heresy" on every one whose sympathies reach a single hair's breadth beyond the boundary epidermis of our own species. Not content with taking all of earth, they also claim the celestial country as the only ones who possess the kind of souls for which that imponderable empire was planned.

This star, our own good earth, made many a successful journey around the heavens ere man was made, and whole kingdoms of creatures enjoyed existence and returned to dust ere man appeared to claim them. After human beings have also played their part in Creation's plan, they too may disappear without any

general burning or extraordinary commotion whatever.

Plants are credited with but dim and uncertain sensation, and minerals with positively none at all. But why may not even a mineral arrangement of matter be endowed with sensation of a kind that we in our blind exclusive perfection can have no manner of communication with?

But I have wandered from my object. I stated a page or two back that man claimed the earth was made for him, and I was going to say that venomous beasts, thorny plants, and deadly diseases of certain parts of the earth prove that the whole world was not made for him. When an animal from a tropical climate is taken to high latitudes, it may perish of cold, and we say that such an animal was never intended for so severe a climate. But when man betakes himself to sickly parts of the tropics and perishes, he cannot see that he was never intended for such deadly climates. No, he will rather accuse the first mother of the cause of the difficulty, though she may never have seen a fever district; or will consider it a providential chastisement for some self-invented form of sin.

Furthermore, all uneatable and uncivilized animals, and all plants which carry prickles,

are deplorable evils which, according to closest researches of clergy, require the cleansing chemistry of universal planetary combustion. But more than aught else mankind requires burning, as being in great part wicked, and if that transmundane furnace can be so applied and regulated as to smelt and purify us into conformity with the rest of the terrestrial creation, then the tophetization of the erratic genus *Homo* were a consummation devoutly to be prayed for. But, glad to leave these ecclesiastical fires and blunders, I joyfully return to the immortal truth and immortal beauty of Nature.

CHAPTER VII

A SOJOURN IN CUBA

One day in January I climbed to the housetop to get a view of another of the fine sunsets of this land of flowers. The landscape was a strip of clear Gulf water, a strip of sylvan coast, a tranquil company of shell and coral keys, and a gloriously colored sky without a threatening cloud. All the winds were hushed and the calm of the heavens was as profound as that of the palmy islands and their encircling waters. As I gazed from one to another of the palm-crowned keys, enclosed by the sunset-colored dome, my eyes chanced to rest upon the fluttering sails of a Yankee schooner that was threading the tortuous channel in the coral reef leading to the harbor of Cedar Keys. "There," thought I, "perhaps I may sail in that pretty white moth." She proved to be the schooner Island Belle.

One day soon after her arrival I went over the key to the harbor, for I was now strong enough to walk. Some of her crew were ashore after water. I waited until their casks were filled, and went with them to the vessel in their boat. Ascertained that she was ready to sail

with her cargo of lumber for Cuba. I engaged passage on her for twenty-five dollars, and asked her sharp-visaged captain when he would sail. "Just as soon," said he, "as we get a north wind. We have had northers enough when we did not want them, and now we have this dying breath from the south."

Hurrying back to the house, I gathered my plants, took leave of my kind friends, and went aboard, and soon, as if to calm the captain's complaints, Boreas came foaming loud and strong. The little craft was quickly trimmed and snugged, her inviting sails spread open, and away she dashed to her ocean home like an exulting war-horse to the battle. Islet after islet speedily grew dim and sank beneath the horizon. Deeper became the blue of the water, and in a few hours all of Florida vanished.

This excursion on the sea, the first one after twenty years in the woods, was of course exceedingly interesting, and I was full of hope, glad to be once more on my journey to the South. Boreas increased in power and the Island Belle appeared to glory in her speed and managed her full-spread wings as gracefully as a sea-bird. In less than a day our norther increased in strength to the storm point. Deeper and wider became the valleys, and yet

higher the hills of the round plain of water. The flying jib and gaff topsails were lowered and mainsails close-reefed, and our deck was white with broken wave-tops.

"You had better go below," said the captain. "The Gulf Stream, opposed by this wind, is raising a heavy sea and you will be sick. No landsman can stand this long." I replied that I hoped the storm would be as violent as his ship could bear, that I enjoyed the scenery of such a sea so much that it was impossible to be sick, that I had long waited in the woods for just such a storm, and that, now that the precious thing had come, I would remain on deck and enjoy it. "Well," said he, "if you can stand this, you are the first landsman I ever saw that could."

I remained on deck, holding on by a rope to keep from being washed overboard, and watched the behavior of the Belle as she dared nobly on; but my attention was mostly directed among the glorious fields of foam-topped waves. The wind had a mysterious voice and carried nothing now of the songs of birds or of the rustling of palms and fragrant vines. Its burden was gathered from a stormy expanse of crested waves and briny tangles. I could see no striving in those magnificent wave-motions, no raging; all the storm was apparently inspired with na-

ture's beauty and harmony. Every wave was obedient and harmonious as the smoothest ripple of a forest lake, and after dark all the water was phosphorescent like silver fire, a glorious sight.

Our luminous storm was all too short for me. Cuba's rock-waves loomed above the white waters early in the morning. The sailors, accustomed to detect the faintest land line, pointed out well-known guiding harbor-marks back of the Morro Castle long before I could see them through the flying spray. We sailed landward for several hours, the misty shore becoming gradually more earthlike. A flock of white-plumaged ships were departing from the Havana harbor, or, like us, seeking to enter it. No sooner had our little schooner flapped her sails in the lee of the Castle than she was boarded by a swarm of daintily dressed officials who were good-naturedly and good-gesturedly making all sorts of inquiries, while our busy captain, paying little attention to them, was giving orders to his crew.

The neck of the harbor is narrow and it is seldom possible to sail in to appointed anchorage without the aid of a steam tug. Our captain wished to save his money, but after much profitless tacking was compelled to take the proffered aid of steam, when we soon reached

our quiet mid-harbor quarters and dropped anchor among ships of every size from every sea.

I was still four or five hundred yards from land and could determine no plant in sight excepting the long-arched leaf banners of the banana and the palm, which made a brave show on the Morro Hill. When we were approaching the land I observed that in some places it was distinctly yellow, and I wondered while we were yet some miles distant whether the color belonged to the ground or to sheets of flowers. From our harbor home I could now see that the color was plant-gold. On one side of the harbor was a city of these yellow plants; on the other, a city of yellow stucco houses, narrowly and confusedly congregated.

"Do you want to go ashore?" said the captain to me. "Yes," I replied, "but I wish to go to the plant side of the harbor." "Oh, well," he said, "come with me now. There are some fine squares and gardens in the city, full of all sorts of trees and flowers. Enjoy these to-day, and some other day we will all go over the Morro Hill with you and gather shells. All kinds of shells are over there; but these yellow slopes that you see are covered only with weeds."

We jumped into the boat and a couple of

sailors pulled us to the thronged, noisy wharf. It was Sunday afternoon,[1] the noisiest day of a Havana week. Cathedral bells and prayers in the forenoon, theaters and bull-fight bells and bellowings in the afternoon! Lowly whispered prayers to the saints and the Virgin, followed by shouts of praise or reproach to bulls and matadors! I made free with fine oranges and bananas and many other fruits. Pineapple I had never seen before. Wandered about the narrow streets, stunned with the babel of strange sounds and sights; went gazing, also, among the gorgeously flowered garden squares, and then waited among some boxed merchandise until our captain, detained by business, arrived. Was glad to escape to our little schooner Belle again, weary and heavy-laden with excitement and tempting fruits.

As night came on, a thousand lights starred the great town. I was now in one of my happy dreamlands, the fairest of West India islands. But how, I wondered, shall I be able to escape from this great city confusion? How shall I reach nature in this delectable land? Consulting my map, I longed to climb the central mountain range of the island and trace it through all its forests and valleys and over its summit peaks, a distance of seven or eight hundred

[1] Doubtless January 12, 1868.

miles. But alas! though out of Florida swamps, fever was yet weighing me down, and a mile of city walking was quite exhausting. The weather too was oppressively warm and sultry.

January 16. During the few days since our arrival the sun usually has risen unclouded, pouring down pure gold, rich and dense, for one or two hours. Then island-like masses of white-edged cumuli suddenly appeared, grew to storm size, and in a few minutes discharged rain in tepid plashing bucketfuls, accompanied with high wind. This was followed by a short space of calm, half-cloudy sky, delightfully fragrant with flowers, and again the air would become hot, thick, and sultry.

This weather, as may readily be perceived, was severe to one so weak and feverish, and after a dozen trials of strength over the Morro Hill and along the coast northward for shells and flowers, I was sadly compelled to see that no enthusiasm could enable me to walk to the interior. So I was obliged to limit my researches to within ten or twelve miles of Havana. Captain Parsons offered his ship as my headquarters, and my weakness prevented me from spending a single night ashore.

The daily programme for nearly all the month that I spent here was about as follows: After breakfast a sailor rowed me ashore on the

north side of the harbor. A few minutes' walk took me past the Morro Castle and out of sight of the town on a broad cactus common, about as solitary and untrodden as the tangles of Florida. Here I zigzagged and gathered prizes among unnumbered plants and shells along the shore, stopping to press the plant specimens and to rest in the shade of vine-heaps and bushes until sundown. The happy hours stole away until I had to return to the schooner. Either I was seen by the sailors who usually came for me, or I hired a boat to take me back. Arrived, I reached up my press and a big handful of flowers, and with a little help climbed up the side of my floating home.

Refreshed with supper and rest, I recounted my adventures in the vine tangles, cactus thickets, sunflower swamps, and along the shore among the breakers. My flower specimens, also, and pocketfuls of shells and corals had to be reviewed. Next followed a cool, dreamy hour on deck amid the lights of the town and the various vessels coming and departing.

Many strange sounds were heard: the vociferous, unsmotherable bells, the heavy thundering of cannon from the Castle, and the shouts of the sentinels in measured time. Combined they made the most incessant sharp-

angled mass of noise that I ever was doomed to hear. Nine or ten o'clock found me in a small bunk with the harbor wavelets tinkling outside close to my ear. The hours of sleep were filled with dreams of heavy heat, of fruitless efforts for the disentanglement of vines, or of running from curling breakers back to the Morro, etc. Thus my days and nights went on.

Occasionally I was persuaded by the captain to go ashore in the evening on his side of the harbor, accompanied perhaps by two or three other captains. After landing and telling the sailors when to call for us, we hired a carriage and drove to the upper end of the city, to a fine public square adorned with shady walks and magnificent plants. A brass band in imposing uniform played the characteristic lance-noted martial airs of the Spanish. Evening is the fashionable hour for aristocratic drives about the streets and squares, the only time that is delightfully cool. I never saw elsewhere people so neatly and becomingly dressed. The proud best-family Cubans may fairly be called beautiful, are under- rather than over-sized, with features exquisitely moulded, and set off with silks and broadcloth in excellent taste. Strange that their amusements should be so coarse. Bull-fighting, brain-splitting bell-ringing, and

the most piercing artificial music appeal to their taste.

The rank and wealth of Havana nobility, when out driving, seems to be indicated by the distance of their horses from the body of the carriage. The higher the rank, the longer the shafts of the carriage, and the clumsier and more ponderous are the wheels, which are not unlike those of a cannon-cart. A few of these carriages have shafts twenty-five feet in length, and the brilliant-liveried negro driver on the lead horse, twenty or thirty feet in advance of the horse in the shafts, is beyond calling distance of his master.

Havana abounds in public squares, which in all my random strolls throughout the big town I found to be well-watered, well-cared-for, well-planted, and full of exceedingly showy and interesting plants, rare even amid the exhaustless luxuriance of Cuba. These squares also contained fine marble statuary and were furnished with seats in the shadiest places. Many of the walks were paved instead of graveled.

The streets of Havana are crooked, labyrinthic, and exceedingly narrow. The sidewalks are only about a foot wide. A traveler experiences delightful relief when, heated and wearied by raids through the breadth of the dingy yellow town, dodging a way through crowds of men

and mules and lumbering carts and carriages, he at length finds shelter in the spacious, dustless, cool, flowery squares; still more when, emerging from all the din and darkness of these lanelike streets, he suddenly finds himself out in the middle of the harbor, inhaling full-drawn breaths of the sea breezes.

The interior of the better houses which came under my observation struck me with the profusion of dumpy, ill-proportioned pillars at the entrances and in the halls, and with the spacious open-fielded appearance of their enclosed square house-gardens or courts. Cubans in general appear to me superfinely polished, polite, and agreeable in society, but in their treatment of animals they are cruel. I saw more downright brutal cruelty to mules and horses, during the few weeks I stayed there, than in my whole life elsewhere. Live chickens and hogs are tied in bunches by the legs and carried to market thus, slung on a mule. In their general treatment of all sorts of animals they seem to have no thought for them beyond cold-blooded, selfish interest.

In tropical regions it is easy to build towns, but it is difficult to subdue their armed and united plant inhabitants, and to clear fields and make them blossom with breadstuff. The plant people of temperate regions, feeble, un-

armed, unallied, disappear under the trampling feet of flocks, herds, and man, leaving their homes to enslavable plants which follow the will of man and furnish him with food. But the armed and united plants of the tropics hold their rightful kingdom plantfully, nor, since the first appearance of Lord Man, have they ever suffered defeat.

A large number of Cuba's wild plants circle closely about Havana. In five minutes' walk from the wharf I could reach the undisturbed settlements of Nature. The field of the greater portion of my rambling researches was a strip of rocky common, silent and unfrequented by anybody save an occasional beggar at Nature's door asking a few roots and seeds. This natural strip extended ten miles along the coast northward, with but few large-sized trees and bushes, but rich in magnificent vines, cacti, composites, leguminous plants, grasses, etc. The wild flowers of this seaside field are a happy band, closely joined in splendid array. The trees shine with blossoms and with light reflected from the leaves. The individuality of the vines is lost in trackless, interlacing, twisting, overheaping union.

Our American "South" is rich in flowery vines. In some districts almost every tree is crowned with them, aiding each other in grace

and beauty. Indiana, Kentucky, and Tennessee have the grapevine in predominant numbers and development. Farther south dwell the greenbriers and countless leguminous vines. A vine common among the Florida islets, perhaps belonging to the dogbane family, overruns live-oaks and palmettoes, with frequently more than a hundred stems twisted into one cable. Yet in no section of the South are there such complicated and such gorgeously flowered vine-tangles as flourish in armed safety in the hot and humid wild gardens of Cuba.

The longest and the shortest vine that I found in Cuba were both leguminous. I have said that the harbor side of the Morro Hill is clothed with tall yellow-flowered composites through which it is difficult to pass. But there are smooth, velvety, lawnlike patches in these *Compositæ* forests. Coming suddenly upon one of these open places, I stopped to admire its greenness and smoothness, when I observed a sprinkling of large papilionaceous blossoms among the short green grass. The long composites that bordered this little lawn were entwined and almost smothered with vines which bore similar corollas in tropic abundance.

I at once decided that these sprinkled flowers had been blown off the encompassing tangles and had been kept fresh by dew and by

spray from the sea. But, on stooping to pick one of them up, I was surprised to find that it was attached to Mother Earth by a short, prostrate, slender hair of a vine stem, bearing, besides the one large blossom, a pair or two of linear leaves. The flower weighed more than stem, root, and leaves combined. Thus, in a land of creeping and twining giants, we find also this charming, diminutive simplicity — the vine reduced to its lowest terms.

The longest vine, prostrate and untwined like its little neighbor, covers patches of several hundred square yards with its countless branches and close growth of upright, trifoliate, smooth green leaves. The flowers are as plain and unshowy in size and color as those of the sweet peas of gardens. The seeds are large and satiny. The whole plant is noble in its motions and features, covering the ground with a depth of unconfused leafage which I have never seen equaled by any other plant. The extent of leaf-surface is greater, I think, than that of a large Kentucky oak. It grows, as far as my observation has reached, only upon shores, in a soil composed of broken shells and corals, and extends exactly to the water-line of the highest-reaching waves. The same plant is abundant in Florida.

The cacti form an important part of the plant

population of my ramble ground. They are various as the vines, consisting now of a diminutive joint or two hid in the weeds, now rising into bushy trees, wide-topped, with trunks a foot in diameter, and with glossy, dark-green joints that reflect light like the silex-varnished palms. They are planted for fences, together with the Spanish bayonet and agave.

In one of my first walks I was laboriously scrambling among some low rocks gathering ferns and vines, when I was startled by finding my face close to a great snake, whose body was disposed carelessly like a castaway rope among the weeds and stones. After escaping and coming to my senses I discovered that the snake was a member of the vegetable kingdom, capable of no dangerous amount of locomotion, but possessed of many a fang, and prostrate as though under the curse of Eden, "Upon thy belly shalt thou go and dust shalt thou eat."

One day, after luxuriating in the riches of my Morro pasture, and pressing many new specimens, I went down to the bank of brilliant wave-washed shells to rest awhile in their beauty, and to watch the breakers that a powerful norther was heaving in splendid rank along the coral boundary. I gathered pocketfuls of shells, mostly small but fine in color and form,

and bits of rosy coral. Then I amused myself by noting the varying colors of the waves and the different forms of their curved and blossoming crests. While thus alone and free it was interesting to learn the richly varied songs, or what we mortals call the roar, of expiring breakers. I compared their variation with the different distances to which the broken wave-water reached landward in its farthest-flung foam-wreaths, and endeavored to form some idea of the one great song sounding forever all around the white-blooming shores of the world.

Rising from my shell seat, I watched a wave leaping from the deep and coming far up the beveled strand to bloom and die in a mass of white. Then I followed the spent waters in their return to the blue deep, wading in their spangled, decaying fragments until chased back up the bank by the coming of another wave. While thus playing half studiously, I discovered in the rough, beaten deathbed of the wave a little plant with closed flowers. It was crouching in a hollow of the brown wave-washed rock, and one by one the chanting, dying waves rolled over it. The tips of its delicate pink petals peered above the clasping green calyx. "Surely," said I, as I stooped over it for a moment, before the oncoming of another wave,

"surely you cannot be living here! You must have been blown from some warm bank, and rolled into this little hollow crack like a dead shell." But, running back after every retiring wave, I found that its roots were wedged into a shallow wrinkle of the coral rock, and that this wave-beaten chink was indeed its dwelling-place.

I had oftentimes admired the adaptation displayed in the structure of the stately dulse and other seaweeds, but never thought to find a high-bred flowering plant dwelling amid waves in the stormy, roaring domain of the sea. This little plant has smooth globular leaves, fleshy and translucent like beads, but green like those of other land plants. The flower is about five eighths of an inch in diameter, rose purple, opening in calm weather, when deserted by the waves. In general appearance it is like a small portulaca. The strand, as far as I walked it, was luxuriantly fringed with woody *Compositæ*, two or three feet in height, their tops purple and golden with a profusion of flowers. Among these I discovered a small bush whose yellow flowers were ideal; all the parts were present regularly alternate and in fives, and all separate, a plain harmony.

When a page is written over but once it may be easily read; but if it be written over and

over with characters of every size and style, it soon becomes unreadable, although not a single confused meaningless mark or thought may occur among all the written characters to mar its perfection. Our limited powers are similarly perplexed and overtaxed in reading the inexhaustible pages of nature, for they are written over and over uncountable times, written in characters of every size and color, sentences composed of sentences, every part of a character a sentence. There is not a fragment in all nature, for every relative fragment of one thing is a full harmonious unit in itself. All together form the one grand palimpsest of the world.

One of the most common plants of my pasture was the agave. It is sometimes used for fencing. One day in looking back from the top of the Morro Hill, as I was returning to the Island Belle, I chanced to observe two poplar-like trees about twenty-five feet in height. They were growing in a dense patch of cactus and vine-knotted sunflowers. I was anxious to see anything so homelike as a poplar, and so made haste towards the two strange trees, making a way through the cactus and sunflower jungle that protected them. I was surprised to find that what I took to be poplars were agaves in flower, the first I had seen. They were almost

out of flower, and fast becoming wilted at the approach of death. Bulbs were scattered about, and a good many still remained on the branches, which gave it a fruited appearance.

The stem of the agave seems enormous in size when one considers that it is the growth of a few weeks. This plant is said to make a mighty effort to flower and mature its seeds and then to die of exhaustion. Now there is not, so far as I have seen, a mighty effort or the need of one, in wild Nature. She accomplishes her ends without unquiet effort, and perhaps there is nothing more mighty in the development of the flower-stem of the agave than in the development of a grass panicle.

Havana has a fine botanical garden. I spent pleasant hours in its magnificent flowery arbors and around its shady fountains. There is a palm avenue which is considered wonderfully stately and beautiful, fifty palms in two straight lines, each rigidly perpendicular. The smooth round shafts, slightly thicker in the middle, appear to be productions of the lathe, rather than vegetable stems. The fifty arched crowns, inimitably balanced, blaze in the sunshine like heaps of stars that have fallen from the skies. The stems were about sixty or seventy feet in height, the crowns about fifteen feet in diameter.

Along a stream-bank were tall, waving bamboos, leafy as willows, and infinitely graceful in wind gestures. There was one species of palm, with immense bipinnate leaves and leaflets fringed, jagged, and one-sided, like those of *Adiantum*. Hundreds of the most gorgeous-flowered plants, some of them large trees, belong to the *Leguminosæ*. Compared with what I have before seen in artificial flower-gardens, this is past comparison the grandest. It is a perfect metropolis of the brightest and most exuberant of garden plants, watered by handsome fountains, while graveled and finely bordered walks slant and curve in all directions, and in all kinds of fanciful playground styles, more like the fairy gardens of the Arabian Nights than any ordinary man-made pleasure-ground.

In Havana I saw the strongest and the ugliest negroes that I have met in my whole walk. The stevedores of the Havana wharf are muscled in true giant style, enabling them to tumble and toss ponderous casks and boxes of sugar weighing hundreds of pounds as if they were empty. I heard our own brawny sailors, after watching them at work a few minutes, express unbounded admiration of their strength, and wish that their hard outbulging muscles were for sale. The countenances of some of

the negro orange-selling dames express a devout good-natured ugliness that I never could have conceived any arrangement of flesh and blood to be capable of. Besides oranges they sold pineapples, bananas, and lottery tickets.

CHAPTER VIII

BY A CROOKED ROUTE TO CALIFORNIA

After passing a month in this magnificent island, and finding that my health was not improving, I made up my mind to push on to South America while my stock of strength, such as it was, lasted. But fortunately I could not find passage for any South American port. I had long wished to visit the Orinoco basin and in particular the basin of the Amazon. My plan was to get ashore anywhere on the north end of the continent, push on southward through the wilderness around the headwaters of the Orinoco, until I reached a tributary of the Amazon, and float down on a raft or skiff the whole length of the great river to its mouth. It seems strange that such a trip should ever have entered the dreams of any person, however enthusiastic and full of youthful daring, particularly under the disadvantages of poor health, of funds less than a hundred dollars, and of the insalubrity of the Amazon Valley.

Fortunately, as I said, after visiting all the shipping agencies, I could not find a vessel of any sort bound for South America, and so made up a plan to go North, to the longed-for cold

weather of New York, and thence to the forests and mountains of California. There, I thought, I shall find health and new plants and mountains, and after a year spent in that interesting country I can carry out my Amazon plans.

It seemed hard to leave Cuba thus unseen and unwalked, but illness forbade my stay and I had to comfort myself with the hope of returning to its waiting treasures in full health. In the mean time I prepared for immediate departure. When I was resting in one of the Havana gardens, I noticed in a New York paper an advertisement of cheap fares to California. I consulted Captain Parsons concerning a passage to New York, where I could find a ship for California. At this time none of the California ships touched at Cuba.

"Well," said he, pointing toward the middle of the harbor, "there is a trim little schooner loaded with oranges for New York, and these little fruiters are fast sailers. You had better see her captain about a passage, for she must be about ready to sail." So I jumped into the dinghy and a sailor rowed me over to the fruiter. Going aboard, I inquired for the captain, who soon appeared on deck and readily agreed to carry me to New York for twenty-five dollars. Inquiring when he would sail, "To-morrow morning at daylight," he replied, "if this

norther slacks a little; but my papers are made out, and you will have to see the American consul to get permission to leave on my ship."

I immediately went to the city, but was unable to find the consul, whereupon I determined to sail for New York without any formal leave. Early next morning, after leaving the Island Belle and bidding Captain Parsons good-bye, I was rowed to the fruiter and got aboard. Notwithstanding the north wind was still as boisterous as ever, our Dutch captain was resolved to face it, confident in the strength of his all-oak little schooner.

Vessels leaving the harbor are stopped at the Morro Castle to have their clearance papers examined; in particular, to see that no runaway slaves were being carried away. The officials came alongside our little ship, but did not come aboard. They were satisfied by a glance at the consul's clearance paper, and with the declaration of the captain, when asked whether he had any negroes, that he had "not a d——d one." "All right, then," shouted the officials, "farewell! A pleasant voyage to you!" As my name was not on the ship's papers, I stayed below, out of sight, until I felt the heaving of the waves and knew that we were fairly out on the open sea. The Castle towers, the hills, the palms, and the wave-white strand, all faded in

the distance, and our mimic sea-bird was at home in the open stormy gulf, curtsying to every wave and facing bravely to the wind.

Two thousand years ago our Saviour told Nicodemus that he did not know where the winds came from, nor where they were going. And now in this Golden Age, though we Gentiles know the birthplace of many a wind and also "whither it is going," yet we know about as little of winds in general as those Palestinian Jews, and our ignorance, despite the powers of science, can never be much less profound than it is at present.

The substance of the winds is too thin for human eyes, their written language is too difficult for human minds, and their spoken language mostly too faint for human ears. A mechanism is said to have been invented whereby the human organs of speech are made to write their own utterances. But without any extra mechanical contrivance, every speaker also writes as he speaks. All things in the creation of God register their own acts. The poet was mistaken when he said, "From the wing no scar the sky sustains." His eyes were simply too dim to see the scar. In sailing past Cuba I could see a fringe of foam along the coast, but could hear no sound of waves, simply because

my ears could not hear wave-dashing at that distance. Yet every bit of spray was sounding in my ears.

The subject brings to mind a few recollections of the winds I heard in my late journey. In my walk from Indiana to the Gulf, earth and sky, plants and people, and all things changeable were constantly changing. Even in Kentucky nature and art have many a characteristic shibboleth. The people differ in language and in customs. Their architecture is generically different from that of their immediate neighbors on the north, not only in planters' mansions, but in barns and granaries and the cabins of the poor. But thousands of familiar flower faces looked from every hill and valley. I noted no difference in the sky, and the winds spoke the same things. I did not feel myself in a strange land.

In Tennessee my eyes rested upon the first mountain scenery I ever beheld. I was rising higher than ever before; strange trees were beginning to appear; alpine flowers and shrubs were meeting me at every step. But these Cumberland Mountains were timbered with oak, and were not unlike Wisconsin hills piled upon each other, and the strange plants were like those that were not strange. The sky was changed only a little, and the winds not by a

single detectible note. Therefore, neither was Tennessee a strange land.

But soon came changes thick and fast. After passing the mountainous corner of North Carolina and a little way into Georgia, I beheld from one of the last ridge-summits of the Alleghanies that vast, smooth, sandy slope that reaches from the mountains to the sea. It is wooded with dark, branchy pines which were all strangers to me. Here the grasses, which are an earth-covering at the North, grow wide apart in tall clumps and tufts like saplings. My known flower companions were leaving me now, not one by one as in Kentucky and Tennessee, but in whole tribes and genera, and companies of shining strangers came trooping upon me in countless ranks. The sky, too, was changed, and I could detect strange sounds in the winds. Now I began to feel myself "a stranger in a strange land."

But in Florida came the greatest change of all, for here grows the palmetto, and here blow the winds so strangely toned by them. These palms and these winds severed the last strands of the cord that united me with home. Now I was a stranger, indeed. I was delighted, astonished, confounded, and gazed in wonderment blank and overwhelming as if I had fallen upon another star. But in all of this long, complex

series of changes, one of the greatest, and the last of all, was the change I found in the tone and language of the winds. They no longer came with the old home music gathered from open prairies and waving fields of oak, but they passed over many a strange string. The leaves of magnolia, smooth like polished steel, the immense inverted forests of tillandsia banks, and the princely crowns of palms — upon these the winds made strange music, and at the coming-on of night had overwhelming power to present the distance from friends and home, and the completeness of my isolation from all things familiar.

Elsewhere I have already noted that when I was a day's journey from the Gulf, a wind blew upon me from the sea — the first sea breeze that had touched me in twenty years. I was plodding along with my satchel and plants, leaning wearily forward, a little sore from approaching fever, when suddenly I felt the salt air, and before I had time to think, a whole flood of long-dormant associations rolled in upon me. The Firth of Forth, the Bass Rock, Dunbar Castle, and the winds and rocks and hills came upon the wings of that wind, and stood out in as clear and sudden light as a landscape flashed upon the view by a blaze of lightning in a dark night.

I like to cling to a small chip of a ship like ours when the sea is rough, and long, comet-tailed streamers are blowing from the curled top of every wave. A big vessel responds awkwardly with mixed gestures to several waves at once, lumbering along like a loose floating island. But our little schooner, buoyant as a gull, glides up one side and down the other of each wave hill in delightful rhythm. As we advanced the scenery increased in grandeur and beauty. The waves heaved higher and grew wider, with corresponding motion. It was delightful to ride over this unsullied country of ever-changing water, and when looking upward from the shallow vales, or abroad over the round expanse from the tops of the wave hills, I almost forgot at times that the glassy, treeless country was forbidden to walkers. How delightful it would be to ramble over it on foot, enjoying the transparent crystal ground, and the music of its rising and falling hillocks, unmarred by the ropes and spars of a ship; to study the plants of these waving plains and their stream-currents; to sleep in wild weather in a bed of phosphorescent wave-foam, or briny scented seaweeds; to see the fishes by night in pathways of phosphorescent light; to walk the glassy plain in calm, with birds and flocks of glittering flying fishes here and there,

or by night with every star pictured in its bosom!

But even of the land only a small portion is free to man, and if he, among other journeys on forbidden paths, ventures among the ice lands and hot lands, or up in the air in balloon bubbles, or on the ocean in ships, or down into it a little way in smothering diving-bells — in all such small adventures man is admonished and often punished in ways which clearly show him that he is in places for which, to use an approved phrase, he was never designed. However, in view of the rapid advancement of our time, no one can tell how far our star may finally be subdued to man's will. At all events I enjoyed this drifting locomotion to some extent.

The tar-scented community of a ship is a study in itself — a despotism on the small territory of a few drifting planks pinned together. But as our crew consisted only of four sailors, a mate, and the captain, there were no signs of despotism. We all dined at one table, enjoying our fine store of salt mackerel and plum duff, with endless abundance of oranges. Not only was the hold of our little ship filled with loose, unboxed oranges, but the deck also was filled up level with the rails, and we had to walk over the top of the golden fruit on boards.

Flocks of flying fishes often flew across the ship, one or two occasionally falling among the oranges. These the sailors were glad to capture to sell in New York as curiosities, or to give away to friends. But the captain had a large Newfoundland dog who got the largest share of these unfortunate fishes. He used to jump from a dozing sleep as soon as he heard the fluttering of their wings, then pounce and feast leisurely on them before the sailors could reach the spot where they fell.

In passing through the Straits of Florida the winds died away and the sea was smoothed to unruffled calm. The water here is very transparent and of delightfully pure pale-blue color, as different from ordinary dull-colored water as town smoke from mountain air. I could see the bottom as distinctly as one sees the ground when riding over it. It seemed strange that our ship should be upborne in such an ethereal liquid as this, and that we did not run aground where the bottom seemed so near.

One morning, while among the Bahama dots of islands, we had calm sky and calm sea. The sun had risen in cloudless glory, when I observed a large flock of flying fish, a short distance from us, closely pursued by a dolphin. These fish-swallows rose in pretty good order, skimmed swiftly ahead for fifty or a hundred

yards in a low arc, then dipped below the surface. Dripping and sparkling, they rose again in a few seconds and glanced back into the lucid brine with wonderful speed, but without apparent terror.

At length the dolphin, gaining on the flock, dashed into the midst of them, and now all order was at an end. They rose in scattering disorder, in all directions, like a flock of birds charged by a hawk. The pursuing dolphin also leaped into the air, showing his splendid colors and wonderful speed. After the first scattering flight all steady pursuit was useless, and the dolphin had but to pounce about in the broken mob of its weary prey until satisfied with his meal.

We are apt to look out on the great ocean and regard it as but a half-blank part of our globe — a sort of desert, "a waste of water." But, land animals though we be, land is about as unknown to us as the sea, but the turbid glances we gain of the ocean in general through commercial eyes are comparatively worthless. Now that science is making comprehensive surveys of the life of the sea, and the forms of its basins, and similar surveys are being made into the land deserts, hot and cold, we may at length discover that the sea is as full of life as the land. None can tell how far man's knowledge may yet reach.

After passing the Straits and sailing up the coast, when about opposite the south end of the Carolina coast, we had stiff head winds all the way to New York and our able little vessel was drenched all day long. Of course our load of oranges suffered, and since they were boarded over level with the rail, we had difficulty in walking and had many chances of being washed overboard. The flying fishes off Cape Hatteras appeared to take pleasure in shooting across from wave-top to wave-top. They avoided the ship during the day, but frequently fell among the oranges at night. The sailors caught many, but our big Newfoundland dog jumped for them faster than the sailors, and so almost monopolized the game.

When dark night fell on the stormy sea the breaking waves of phosphorescent light were a glorious sight. On such nights I stood on the bowsprit holding on by a rope for hours in order to enjoy this phenomenon. How wonderful this light is! Developed in the sea by myriads of organized beings, it gloriously illuminates the pathways of the fishes, and every breaking wave, and in some places glows over large areas like sheet lightning. We sailed through large fields of seaweed, of which I procured specimens. I thoroughly enjoyed life in this novel little tar-and-oakum home, and, as the end of

our voyage drew nigh, I was sorry at the thought of leaving it.

We were now, on the twelfth day, approaching New York, the big ship metropolis. We were in sight of the coast all day. The leafless trees and the snow appeared wonderfully strange. It was now about the end of February and snow covered the ground nearly to the water's edge. Arriving, as we did, in this rough winter weather from the intense heat and general tropical luxuriance of Cuba, the leafless, snow-white woods of New York struck us with all the novelty and impressiveness of a new world. A frosty blast was sweeping seaward from Sandy Hook. The sailors explored their wardrobes for their long-cast-off woolens, and pulled the ropes and managed the sails while muffled in clothing to the rotundity of Eskimos. For myself, long burdened with fever, the frosty wind, as it sifted through my loosened bones, was more delicious and grateful than ever was a spring-scented breeze.

We now had plenty of company; fleets of vessels were on the wing from all countries. Our taut little racer outwinded without exception all who, like her, were going to the port. Toward evening we were grinding and wedging our way through the ice-field of the river delta, which we passed with difficulty. Arrived

in port at nine o'clock. The ship was deposited, like a cart at market, in a proper slip, and next morning we and our load of oranges, one third rotten, were landed. Thus all the purposes of our voyage were accomplished.

On our arrival the captain, knowing something of the lightness of my purse, told me that I could continue to occupy my bed on the ship until I sailed for California, getting my meals at a near-by restaurant. "This is the way we are all doing," he said. Consulting the newspapers, I found that the first ship, the Nebraska, sailed for Aspinwall in about ten days, and that the steerage passage to San Francisco by way of the Isthmus was only forty dollars.

In the mean time I wandered about the city without knowing a single person in it. My walks extended but little beyond sight of my little schooner home. I saw the name Central Park on some of the street-cars and thought I would like to visit it, but, fearing that I might not be able to find my way back, I dared not make the adventure. I felt completely lost in the vast throngs of people, the noise of the streets, and the immense size of the buildings. Often I thought I would like to explore the city if, like a lot of wild hills and valleys, it was clear of inhabitants.

The day before the sailing of the Panama

ship I bought a pocket map of California and allowed myself to be persuaded to buy a dozen large maps, mounted on rollers, with a map of the world on one side and the United States on the other. In vain I said I had no use for them. "But surely you want to make money in California, don't you? Everything out there is very dear. We'll sell you a dozen of these fine maps for two dollars each and you can easily sell them in California for ten dollars apiece." I foolishly allowed myself to be persuaded. The maps made a very large, awkward bundle, but fortunately it was the only baggage I had except my little plant-press and a small bag. I laid them in my berth in the steerage, for they were too large to be stolen and concealed.

There was a savage contrast between life in the steerage and my fine home on the little ship fruiter. Never before had I seen such a barbarous mob, especially at meals. Arrived at Aspinwall-Colon, we had half a day to ramble about before starting across the Isthmus. Never shall I forget the glorious flora, especially for the first fifteen or twenty miles along the Chagres River. The riotous exuberance of great forest trees, glowing in purple, red, and yellow flowers, far surpassed anything I had ever seen, especially of flowering trees, either in Florida or Cuba. I gazed from the car-platform en-

chanted. I fairly cried for joy and hoped that some time I should be able to return and enjoy and study this most glorious of forests to my heart's content. We reached San Francisco about the first of April, and I remained there only one day, before starting for Yosemite Valley.[1]

I followed the Diablo foothills along the San José Valley to Gilroy, thence over the Diablo Mountains to the valley of the San Joaquin by the Pacheco Pass, thence down the valley opposite the mouth of the Merced River, thence across the San Joaquin, and up into the Sierra Nevada to the mammoth trees of Mariposa, and the glorious Yosemite, and thence down the Merced to this place.[2] The goodness of the weather as I journeyed towards Pacheco was beyond all praise and description — fragrant, mellow, and bright. The sky was perfectly delicious, sweet enough for the breath of angels; every draught of it gave a separate and distinct piece of pleasure. I do not believe that Adam and Eve ever tasted better in their balmiest nook.

The last of the Coast Range foothills were in near view all the way to Gilroy. Their union

[1] At this point the journal ends. The remainder of this chapter is taken from a letter written to Mrs. Ezra S. Carr from the neighborhood of Twenty Hill Hollow in July, 1868.

[2] Near Snelling, Merced County, California.

with the valley is by curves and slopes of inimitable beauty. They were robed with the greenest grass and richest light I ever beheld, and were colored and shaded with myriads of flowers of every hue, chiefly of purple and golden yellow. Hundreds of crystal rills joined song with the larks, filling all the valley with music like a sea, making it Eden from end to end.

The scenery, too, and all of nature in the Pass is fairly enchanting. Strange and beautiful mountain ferns are there, low in the dark cañons and high upon the rocky sunlit peaks; banks of blooming shrubs, and sprinklings and gatherings of garment flowers, precious and pure as ever enjoyed the sweets of a mountain home. And oh! what streams are there! beaming, glancing, each with music of its own, singing as they go, in shadow and light, onward upon their lovely, changing pathways to the sea. And hills rise over hills, and mountains over mountains, heaving, waving, swelling, in most glorious, overpowering, unreadable majesty.

When at last, stricken and faint like a crushed insect, you hope to escape from all the terrible grandeur of these mountain powers, other fountains, other oceans break forth before you; for there, in clear view, over heaps and rows of foothills, is laid a grand, smooth, outspread

plain, watered by a river, and another range of peaky, snow-capped mountains a hundred miles in the distance. That plain is the valley of the San Joaquin, and those mountains are the great Sierra Nevada. The valley of the San Joaquin is the floweriest piece of world I ever walked, one vast, level, even flower-bed, a sheet of flowers, a smooth sea, ruffled a little in the middle by the tree fringing of the river and of smaller cross-streams here and there, from the mountains.

Florida is indeed a "land of flowers," but for every flower creature that dwells in its most delightsome places more than a hundred are living here. Here, here is Florida! Here they are not sprinkled apart with grass between as on our prairies, but grasses are sprinkled among the flowers; not as in Cuba, flowers piled upon flowers, heaped and gathered into deep, glowing masses, but side by side, flower to flower, petal to petal, touching but not entwined, branches weaving past and past each other, yet free and separate — one smooth garment, mosses next the ground, grasses above, petaled flowers between.

Before studying the flowers of this valley and their sky, and all of the furniture and sounds and adornments of their home, one can scarce believe that their vast assemblies are perma-

nent; but rather that, actuated by some plant purpose, they had convened from every plain and mountain and meadow of their kingdom, and that the different coloring of patches, acres, and miles marks the bounds of the various tribes and family encampments.

CHAPTER IX

TWENTY HILL HOLLOW [1]

WERE we to cross-cut the Sierra Nevada into blocks a dozen miles or so in thickness, each section would contain a Yosemite Valley and a river, together with a bright array of lakes and meadows, rocks and forests. The grandeur and inexhaustible beauty of each block would be so vast and over-satisfying that to choose among them would be like selecting slices of bread cut from the same loaf. One bread-slice might have burnt spots, answering to craters; another would be more browned; another, more crusted or raggedly cut; but all essentially the same. In no greater degree would the Sierra slices differ in general character. Nevertheless, we all would choose the Merced slice, because, being easier of access, it has been nibbled and tasted, and pronounced very good; and because of the concentrated form of its Yosemite, caused by certain conditions of baking, yeasting, and glacier-frosting of this portion of the great Sierra loaf.

[1] This is the hub of the region where Mr. Muir spent the greater part of the summer of 1868 and the spring of 1869.

In like manner, we readily perceive that the great central plain is one batch of bread — one golden cake — and we are loath to leave these magnificent loaves for crumbs, however good.

After our smoky sky has been washed in the rains of winter, the whole complex row of Sierras appear from the plain as a simple wall slightly beveled, and colored in horizontal bands laid one above another, as if entirely composed of partially straightened rainbows. So, also, the plain seen from the mountains has the same simplicity of smooth surface, colored purple and yellow, like a patchwork of irised clouds. But when we descend to this smooth-furred sheet, we discover complexity in its physical conditions equal to that of the mountains, though less strongly marked. In particular, that portion of the plain lying between the Merced and the Tuolumne, within ten miles of the slaty foothills, is most elaborately carved into valleys, hollows, and smooth undulations, and among them is laid the Merced Yosemite of the plain — Twenty Hill Hollow.

This delightful Hollow is less than a mile in length, and of just sufficient width to form a well-proportioned oval. It is situated about midway between the two rivers, and five miles from the Sierra foothills. Its banks are formed

of twenty hemispherical hills; hence its name. They surround and enclose it on all sides, leaving only one narrow opening toward the southwest for the escape of its waters. The bottom of the Hollow is about two hundred feet below the level of the surrounding plain, and the tops of its hills are slightly below the general level. Here is no towering dome, no Tissiack, to mark its place; and one may ramble close upon its rim before he is made aware of its existence. Its twenty hills are as wonderfully regular in size and position as in form. They are like big marbles half buried in the ground, each poised and settled daintily into its place at a regular distance from its fellows, making a charming fairy-land of hills, with small, grassy valleys between, each valley having a tiny stream of its own, which leaps and sparkles out into the open hollow, uniting to form Hollow Creek.

Like all others in the immediate neighborhood, these twenty hills are composed of stratified lavas mixed with mountain drift in varying proportions. Some strata are almost wholly made up of volcanic matter — lava and cinders — thoroughly ground and mixed by the waters that deposited them; others are largely composed of slate and quartz boulders of all degrees of coarseness, forming conglomerates. A

few clear, open sections occur, exposing an elaborate history of seas, and glaciers, and volcanic floods — chapters of cinders and ashes that picture dark days, when these bright snowy mountains were clouded in smoke, and rivered and laked with living fire. A fearful age, say mortals, when these Sierras flowed lava to the sea. What horizons of flame! what atmospheres of ashes and smoke!

The conglomerates and lavas of this region are readily denuded by water. In the time when their parent sea was removed to form this golden plain, their regular surface, in great part covered with shallow lakes, showed little variation from motionless level until torrents of rain and floods from the mountains gradually sculptured the simple page to the present diversity of bank and brae, creating, in the section between the Merced and the Tuolumne, Twenty Hill Hollow, Lily Hollow, and the lovely valleys of Cascade and Castle Creeks, with many others nameless and unknown, seen only by hunters and shepherds, sunk in the wide bosom of the plain, like undiscovered gold. Twenty Hill Hollow is a fine illustration of a valley created by erosion of water. Here are no Washington columns, no angular El Capitans. The hollow cañons, cut in soft lavas, are not so deep as to require a single earthquake at

the hands of science, much less a baker's dozen of those convenient tools demanded for the making of mountain Yosemites, and our moderate arithmetical standards are not outraged by a single magnitude of this simple, comprehensible hollow.

The present rate of denudation of this portion of the plain seems to be about one tenth of an inch per year. This approximation is based upon observations made upon stream-banks and perennial plants. Rains and winds remove mountains without disturbing their plant or animal inhabitants. Hovering petrels, the fishes and floating plants of ocean, sink and rise in beautiful rhythm with its waves; and, in like manner, the birds and plants of the plain sink and rise with these waves of land, the only difference being that the fluctuations are more rapid in the one case than in the other.

In March and April the bottom of the Hollow and every one of its hills are smoothly covered and plushed with yellow and purple flowers, the yellow predominating. They are mostly social *Compositæ*, with a few claytonias, gilias, eschscholtzias, white and yellow violets, blue and yellow lilies, dodecatheons, and eriogonums set in a half-floating maze of purple grasses. There is but one vine in the Hollow — the *Megarrhiza* [*Echinocystis* T. & D.] or

"Big Root." The only bush within a mile of it, about four feet in height, forms so remarkable an object upon the universal smoothness that my dog barks furiously around it, at a cautious distance, as if it were a bear. Some of the hills have rock ribs that are brightly colored with red and yellow lichens, and in moist nooks there are luxuriant mosses — *Bartramia*, *Dicranum*, *Funaria*, and several *Hypnums*. In cool, sunless coves the mosses are companioned with ferns — a *Cystopteris* and the little gold-dusted rock fern, *Gymnogramma triangularis*.

The Hollow is not rich in birds. The meadowlark homes there, and the little burrowing owl, the killdeer, and a species of sparrow. Occasionally a few ducks pay a visit to its waters, and a few tall herons — the blue and the white — may at times be seen stalking along the creek; and the sparrow hawk and gray eagle [1] come to hunt. The lark, who does nearly all the singing for the Hollow, is not identical in species with the meadowlark of the East, though closely resembling it; richer flowers and skies have inspired him with a better song than was ever known to the Atlantic lark.

I have noted three distinct lark-songs here. The words of the first, which I committed to

[1] Mr. Muir doubtless meant the golden eagle (*Aquila chrysaëtos*).

memory at one of their special meetings, spelled as sung, are "Wee-ro spee-ro wee-o weer-ly wee-it." On the 20th of January, 1869, they sang "Queed-lix boodle," repeating it with great regularity, for hours together, to music sweet as the sky that gave it. On the 22d of the same month, they sang "Chee chool chee-dildy choodildy." An inspiration is this song of the blessed lark, and universally absorbable by human souls. It seems to be the only bird-song of these hills that has been created with any direct reference to us. Music is one of the attributes of matter, into whatever forms it may be organized. Drops and sprays of air are specialized, and made to plash and churn in the bosom of a lark, as infinitesimal portions of air plash and sing about the angles and hollows of sand-grains, as perfectly composed and predestined as the rejoicing anthems of worlds; but our senses are not fine enough to catch the tones. Fancy the waving, pulsing melody of the vast flower-congregations of the Hollow flowing from myriad voices of tuned petal and pistil, and heaps of sculptured pollen. Scarce one note is for us; nevertheless, God be thanked for this blessed instrument hid beneath the feathers of a lark.

The eagle does not dwell in the Hollow; he only floats there to hunt the long-eared hare.

One day I saw a fine specimen alight upon a hillside. I was at first puzzled to know what power could fetch the sky-king down into the grass with the larks. Watching him attentively, I soon discovered the cause of his earthiness. He was hungry and stood watching a long-eared hare, which stood erect at the door of his burrow, staring his winged fellow mortal full in the face. They were about ten feet apart. Should the eagle attempt to snatch the hare, he would instantly disappear in the ground. Should long-ears, tired of inaction, venture to skim the hill to some neighboring burrow, the eagle would swoop above him and strike him dead with a blow of his pinions, bear him to some favorite rock table, satisfy his hunger, wipe off all marks of grossness, and go again to the sky.

Since antelopes have been driven away, the hare is the swiftest animal of the Hollow. When chased by a dog he will not seek a burrow, as when the eagle wings in sight, but skims wavily from hill to hill across connecting curves, swift and effortless as a bird-shadow. One that I measured was twelve inches in height at the shoulders. His body was eighteen inches, from nose-tip to tail. His great ears measured six and a half inches in length and two in width. His ears — which, notwithstand-

ing their great size, he wears gracefully and becomingly — have procured for him the homely nickname, by which he is commonly known, of "Jackass rabbit." Hares are very abundant over all the plain and up in the sunny, lightly wooded foothills, but their range does not extend into the close pine forests.

Coyotes, or California wolves, are occasionally seen gliding about the Hollow; but they are not numerous, vast numbers having been slain by the traps and poisons of sheep-raisers. The coyote is about the size of a small shepherd-dog, beautiful and graceful in motion, with erect ears, and a bushy tail, like a fox. Inasmuch as he is fond of mutton, he is cordially detested by "sheep-men" and nearly all cultured people.

The ground-squirrel is the most common animal of the Hollow. In several hills there is a soft stratum in which they have tunneled their homes. It is interesting to observe these rodent towns in time of alarm. Their one circular street resounds with sharp, lancing outcries of "Seekit, seek, seek, seekit!" Near neighbors, peeping cautiously half out-of-doors, engage in low, purring chat. Others, bolt upright on the doorsill or on the rock above, shout excitedly, as if calling attention to the motions and aspects of the enemy. Like the wolf, this little

animal is accursed, because of his relish for grain. What a pity that Nature should have made so many small mouths palated like our own!

All the seasons of the Hollow are warm and bright, and flowers bloom through the whole year. But the grand commencement of the annual genesis of plant and insect life is governed by the setting-in of the rains, in December or January. The air, hot and opaque, is then washed and cooled. Plant seeds, which for six months have lain on the ground dry as if garnered in a farmer's bin, at once unfold their treasured life. Flies hum their delicate tunes. Butterflies come from their coffins, like cotyledons from their husks. The network of dry water-courses, spread over valleys and hollows, suddenly gushes with bright waters, sparkling and pouring from pool to pool, like dusty mummies risen from the dead and set living and laughing with color and blood. The weather grows in beauty, like a flower. Its roots in the ground develop day-clusters a week or two in size, divided by and shaded in foliage of clouds; or round hours of ripe sunshine wave and spray in sky-shadows, like racemes of berries half hidden in leaves.

These months of so-called rainy season are not filled with rain. Nowhere else in North

America, perhaps in the world, are Januarys so balmed and glowed with vital sunlight. Referring to my notes of 1868 and 1869, I find that the first heavy general rain of the season fell on the 18th of December. January yielded to the Hollow, during the day, only twenty hours of rain, which was divided among six rainy days. February had only three days on which rain fell, amounting to eighteen and one half hours in all. March had five rainy days. April had three, yielding seven hours of rain. May also had three wet days, yielding nine hours of rain, and completed the so-called "rainy season" for that year, which is probably about an average one. It must be remembered that this rain record has nothing to do with what fell in the night.

The ordinary rainstorm of this region has little of that outward pomp and sublimity of structure so characteristic of the storms of the Mississippi Valley. Nevertheless, we have experienced rainstorms out on these treeless plains, in nights of solid darkness, as impressively sublime as the noblest storms of the mountains. The wind, which in settled weather blows from the northwest, veers to the southeast; the sky curdles gradually and evenly to a grainless, seamless, homogeneous cloud; and then comes the rain, pouring steadily and often driven

aslant by strong winds. In 1869, more than three fourths of the winter rains came from the southeast. One magnificent storm from the northwest occurred on the 21st of March; an immense, round-browed cloud came sailing over the flowery hills in most imposing majesty, bestowing water as from a sea. The passionate rain-gush lasted only about one minute, but was nevertheless the most magnificent cataract of the sky mountains that I ever beheld. A portion of calm sky toward the Sierras was brushed with thin, white cloud-tissue, upon which the rain-torrent showed to a great height — a cloud waterfall, which, like those of Yosemite, was neither spray, rain, nor solid water. In the same year the cloudiness of January, omitting rainy days, averaged 0.32; February, 0.13; March, 0.20; April, 0.10; May, 0.08. The greater portion of this cloudiness was gathered into a few days, leaving the others blocks of solid, universal sunshine in every chink and pore.

At the end of January, four plants were in flower: a small white cress, growing in large patches; a low-set, umbelled plant, with yellow flowers; an eriogonum, with flowers in leafless spangles; and a small boragewort. Five or six mosses had adjusted their hoods, and were in the prime of life. In February, squirrels, hares,

and flowers were in springtime joy. Bright plant-constellations shone everywhere about the Hollow. Ants were getting ready for work, rubbing and sunning their limbs upon the husk-piles around their doors; fat, pollen-dusted, "burly, dozing humble-bees" were rumbling among the flowers; and spiders were busy mending up old webs, or weaving new ones. Flowers were born every day, and came gushing from the ground like gayly dressed children from a church. The bright air became daily more songful with fly-wings, and sweeter with breath of plants.

In March, plant-life is more than doubled. The little pioneer cress, by this time, goes to seed, wearing daintily embroidered silicles. Several claytonias appear; also, a large white leptosiphon [?], and two nemophilas. A small plantago becomes tall enough to wave and show silky ripples of shade. Toward the end of this month or the beginning of April, plant-life is at its greatest height. Few have any just conception of its amazing richness. Count the flowers of any portion of these twenty hills, or of the bottom of the Hollow, among the streams: you will find that there are from one to ten thousand upon every square yard, counting the heads of *Compositæ* as single flowers. Yellow *Compositæ* form by far the greater portion

of this goldy-way. Well may the sun feed them with his richest light, for these shining sunlets are his very children — rays of his ray, beams of his beam! One would fancy that these California days receive more gold from the ground than they give to it. The earth has indeed become a sky; and the two cloudless skies, raying toward each other flower-beams and sunbeams, are fused and congolded into one glowing heaven. By the end of April most of the Hollow plants have ripened their seeds and died; but, undecayed, still assist the landscape with color from persistent involucres and corolla-like heads of chaffy scales.

In May, only a few deep-set lilies and eriogonums are left alive. June, July, August, and September are the season of plant rest, followed, in October, by a most extraordinary outgush of plant-life, at the very driest time of the whole year. A small, unobtrusive plant, *Hemizonia virgata*, from six inches to three feet in height, with pale, glandular leaves, suddenly bursts into bloom, in patches miles in extent, like a resurrection of the gold of April. I have counted upward of three thousand heads upon one plant. Both leaves and pedicels are so small as to be nearly invisible among so vast a number of daisy golden-heads that seem to keep their places unsupported, like stars in the

sky. The heads are about five eighths of an inch in diameter; rays and disk-flowers, yellow; stamens, purple. The rays have a rich, furred appearance, like the petals of garden pansies. The prevailing summer wind makes all the heads turn to the southeast. The waxy secretion of its leaves and involucres has suggested its grim name of "tarweed," by which it is generally known. In our estimation, it is the most delightful member of the whole Composite Family of the plain. It remains in flower until November, uniting with an eriogonum that continues the floral chain across December to the spring plants of January. Thus, although nearly all of the year's plant-life is crowded into February, March, and April, the flower circle around the Twenty Hill Hollow is never broken.

The Hollow may easily be visited by tourists *en route* for Yosemite, as it is distant only about six miles from Snelling's. It is at all seasons interesting to the naturalist; but it has little that would interest the majority of tourists earlier than January or later than April. If you wish to see how much of light, life, and joy can be got into a January, go to this blessed Hollow. If you wish to see a plant-resurrection, — myriads of bright flowers crowding from the ground, like souls to a judgment, — go to Twenty Hills

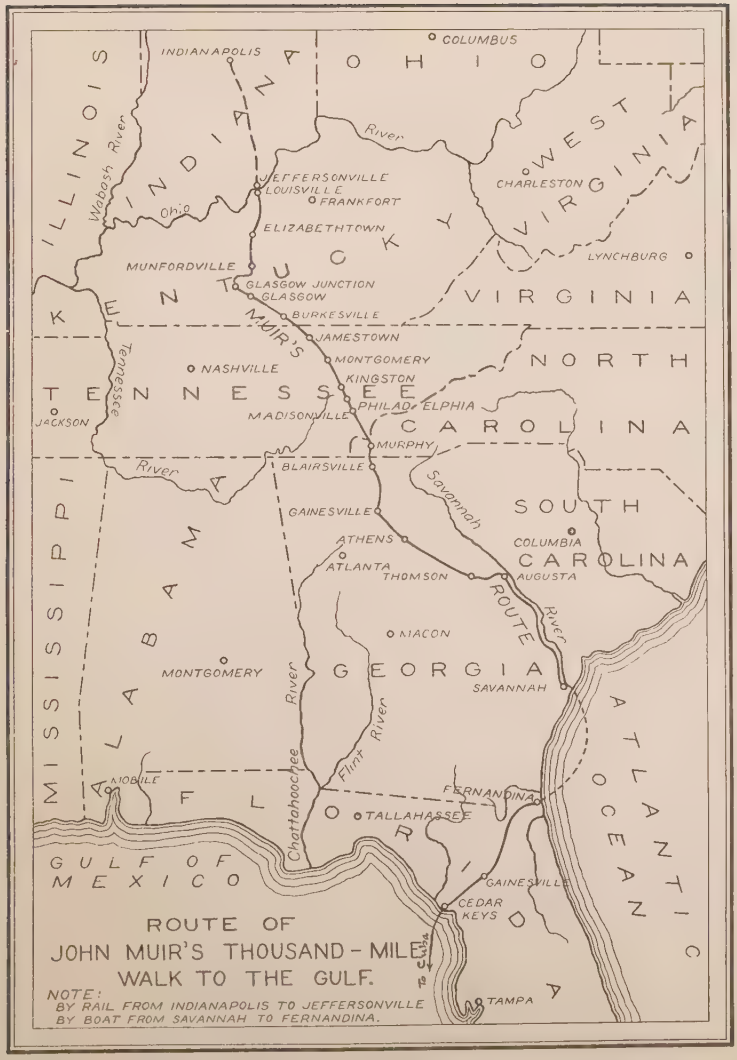
in February. If you are traveling for health, play truant to doctors and friends, fill your pocket with biscuits, and hide in the hills of the Hollow, lave in its waters, tan in its golds, bask in its flower-shine, and your baptisms will make you a new creature indeed. Or, choked in the sediments of society, so tired of the world, here will your hard doubts disappear, your carnal incrustations melt off, and your soul breathe deep and free in God's shoreless atmosphere of beauty and love.

Never shall I forget my baptism in this font. It happened in January, a resurrection day for many a plant and for me. I suddenly found myself on one of its hills; the Hollow overflowed with light, as a fountain, and only small, sunless nooks were kept for mosseries and ferneries. Hollow Creek spangled and mazed like a river. The ground steamed with fragrance. Light, of unspeakable richness, was brooding the flowers. Truly, said I, is California the Golden State — in metallic gold, in sun gold, and in plant gold. The sunshine for a whole summer seemed condensed into the chambers of that one glowing day. Every trace of dimness had been washed from the sky; the mountains were dusted and wiped clean with clouds — Pacheco Peak and Mount Diablo, and the waved blue wall between; the grand Sierra stood along the

plain, colored in four horizontal bands: — the lowest, rose purple; the next higher, dark purple; the next, blue; and, above all, the white row of summits pointing to the heavens.

It may be asked, What have mountains fifty or a hundred miles away to do with Twenty Hill Hollow? To lovers of the wild, these mountains are not a hundred miles away. Their spiritual power and the goodness of the sky make them near, as a circle of friends. They rise as a portion of the hilled walls of the Hollow. You cannot feel yourself out of doors; plain, sky, and mountains ray beauty which you feel. You bathe in these spirit-beams, turning round and round, as if warming at a camp-fire. Presently you lose consciousness of your own separate existence: you blend with the landscape, and become part and parcel of nature.

THE END


ILLINOIS
INDIANA
OHIO
KENTUCKY
TENNESSEE
MISSISSIPPI
ALABAMA
GEORGIA
FLORIDA
SOUTH CAROLINA
NORTH CAROLINA
VIRGINIA
WEST VIRGINIA
INDIANAPOLIS
COLUMBUS
Wabash River
Ohio River
JEFFERSONVILLE
LOUISVILLE
FRANKFORT
ELIZABETHTOWN
MUNFORDVILLE
GLASGOW JUNCTION
GLASGOW
BURKESVILLE
JAMESTOWN
MUIR'S
NASHVILLE
MONTGOMERY
KINGSTON
PHILADELPHIA
MADISONVILLE
JACKSON
Tennessee River
MURPHY
BLAIRSVILLE
GAINESVILLE
ATHENS
ATLANTA
THOMSON
AUGUSTA
Savannah River
COLUMBIA
CHARLESTON
LYNCHBURG
ROUTE
MACON
MONTGOMERY
SAVANNAH
Chattahoochee River
Flint River
MOBILE
TALLAHASSEE
FERNANDINA
GULF OF MEXICO
ATLANTIC OCEAN
GAINESVILLE
CEDAR KEYS
TAMPA
St. Johns R.
ROUTE OF
JOHN MUIR'S THOUSAND-MILE
WALK TO THE GULF.
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